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PRACTICAL ILLUSTRATIONS

OF

TYPHUS AND OTHER FEVERS:

OF

PULMONARY CONSUMPTION.

MEASLES, &c. &c.

BY JOHN ^{ARMSTRONG}, M. D.
Physician to the Fever Institution of London.

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BY P. WASHINGTON LELAND, M. D.

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DISTRICT OF MASSACHUSETTS, *to wit.*

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Be it remembered, that on the 6th day of February A. D. 1829, in the fifty third Year of the Independence of the United States of America Timothy Bedlington of the said District, has deposited in this Office the Title of a Book the right whereof he claims as Proprietor in the words following, to wit: " *Practical Illustrations of Typhus and other Fevers: of Pulmonary Consumption, Measles, &c. &c.—By John Armstrong, M. D. Physician to the Fever Institution of London—From the last London Editions, with notes, by P. Washington Leland, M. D.* In conformity to the Act of the Congress of the United States, entitled "An Act for the encouragement of Learning by securing the copies of Maps, Charts, and Books, to the Authors and Proprietors of such Copies, during the times therein mentioned;" and also to an Act entitled "An Act supplementary to an Act entitled, "An Act for the Encouragement of Learning, by securing the Copies of Maps, Charts and Books, to the Authors and Proprietors of such Copies, during the times therein mentioned; and extending the Benefits thereof to the Arts of Designing, Engraving and Etching Historical and other Prints."

JNO. W. DAVIS,
Clerk of the District of Massachusetts.

PREFACE.

THE author of the following pages, Dr. John Armstrong, is already so favourably known to the medical profession in this country that high commendations at this time are wholly unnecessary. As a writer if he have equals, he certainly has few superiors.— Highly gifted by nature with a strong and vigorous intellect, close and unremitting application to the science and art of his profession has rendered him a conspicuous and shining ornament to medical literature and a true benefactor of mankind.

The present volume embraces a great variety of diseases; diseases peculiarly interesting and important from their frequent occurrence, fatal tendency, and the various forms and characters which they, at different times, individually exhibit, each of which our author has treated at considerable length and with great ability. In cases where he has differed from others, the reasons which led to such difference, are stated with great candour and always with peculiar modesty. “Now and then,” says he, in his preface to Typhus Fever, “I have felt it a duty pointedly to dissent from the doctrine of noted authors, because error is always most dangerous when sanctioned by a celebrated name; yet fully sensible of their general superiority, it has been my aim to mingle respect with animadversion.” To say more in praise of our author were superfluous, and to say less, unjust.

The labours of the editor in the work before us, require a passing notice. In the first place it may be well to observe, that the several articles comprising this volume were not written or published at the same time, or in other words, they were not intended by the author for a single work, consequently a

PREFACE.

preface accompanied one article if it appeared alone or so many as were published at the same time; but now that they are brought together in a single volume, no good reason seems to exist why one rather than another of these should be republished. To insert the whole would be an unnecessary waste of room and to insert one only would be indefinite in its bearing upon the entire work. On these accounts we have deemed it best to strike out the whole, and the more especially, since they contain nothing that is essential to a clear and perfect understanding of the text. It will further be seen that our plan of reduction did not entirely cease with the preface. In a work of such magnitude as the present, and thrown upon the public as already stated, it is evident that occasional digressions, and many unnecessary repetitions must have crept in which would have found no place as at present connected, had the author given it to the world in its present combined state. These considerations determined us to inspect, more critically, perhaps than we otherwise should have done the several subjects under consideration, and to throw out such portions as could be well dispensed with, without any prejudice to the work. In so doing, however, we have been extremely cautious, perhaps fearful to a fault, making it a point in no instance to reject or impair any leading idea or fact necessary to a plain and perfect elucidation of the subject. So that a careful comparison of this edition with the original will show that if we have occasionally annihilated a flower, lopped an exuberant branch, or eradicated a weed, all the more esculent plants and fruits are left untouched.

Of the few notes that will be found scattered through the work, some are to strengthen, and others to explain the doctrines advanced in the text, while a few will be found opposing the positions of the author. The latter class, perhaps, might have been profitably augmented, but the instances requiring it are either so obvious that the attentive reader will himself readily supply them, or, on the other hand, considerable space must have been occupied in offering other opinions, which even then might be less tenable than those already advanced.

PREFACE.

Further, it is evident that *notes* generally contain very little besides a statement of *results* or *conclusions*, to which the writer of them has arrived, without any, or but very few of the steps that led to such results and conclusions, consequently he must trust much to the candour, but more to the judgment, and general intelligence of his readers, for a just and impartial estimate of the value and importance of his labours.

Where facts are wanting men may very honestly differ in opinion, and here it is that the ingenious speculate, often no doubt, to the advancement of science, but oftener it is to be apprehended, to the mere amusement of themselves and their readers. This remark, however, will be found to press lightly upon our author, and as lightly it is to be hoped, upon the editor.

In closing it is but justice to remark that whatever may be the merits or defects of the matter here added, no one is responsible but the editor himself, though he cannot suffer the present opportunity to pass without acknowledging the obligation he is under to an excellent friend and able practitioner Daniel Thurber, M. D. of Mendon, for the very liberal manner in which he has answered several colloquial inquiries respecting the more difficult topics embraced in the last half of the work.

The whole will be found divided into chapters throughout, and into sections where it would seem to facilitate the labour of reference, and under each of these heads a copious index marks the various subjects introduced into the following pages.

P. W. LELAND.

Mendon, Dec. 1828.

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CHAPTER I.

TYPHUS FEVER.

IT is probable, that the disease now called typhus existed from a remote period, and though it is alluded to by Sydenham, it appears not to have been distinctly characterized, as an infectious (a) complaint of its own kind, until about the beginning of the eighteenth century. Since that time, however, various works have appeared, and thrown considerable light upon this interesting distemper. Yet it must be confessed, that the term typhus is still used in medical writings, but more particularly in medical speech, far too indiscriminately. Instead of being solely confined to the individual disease in question, it is made to include a great variety of widely different affections; especially when in their course, the concomitant fever puts on a low or putrid type, as frequently happens in the last stages of many inflammatory diseases of the external and internal textures.

(a) When Dr. Armstrong wrote this article he considered human contagion the primary source of the disease. Since then, however, he has abandoned this opinion, and now believes that *marsh effluvium* is the cause, consequently we shall throughout this article meet with sentiments which the author does not, at present, entertain, but as this point is not urged at any considerable length, and as it does not in any manner effect the mode of treatment, it cannot be considered a very serious objection to the work. Some very eminent physicians in this country, and among them Dr. N. Smith of Yale College, still believe in the contagious nature of this disease.

The word typhus is still to generally associated with the opinion, that the fever, which it properly designates, is in all its stages a disease of real debility; but this notion has either been taken on the word of those authorities, who for a time gave the tone to medical opinions and theories, or it has been impressed upon the minds of those who entertain it, from a contemplation of the disorder wholly limited to its advanced periods. An extensive observation, however, during a series of years, has convinced me that the genuine typhus, so far from being of an asthenic nature, is most certainly an affection of excitement or of congestion, in its first stages, demanding at such times the evacuant plan.

Typhus is unquestionably most prevalent in cold or temperate climates. In England, it is evidently favored by a low temperature, being most prevalent in the cold seasons of winter and spring, generally abating or disappearing, as the heat of summer advances, and often prevailing to a considerable degree in cold wet autumns; (b) but nevertheless it occasionally prevails at all times in the year, and is even undiminished by the hottest weather in this country, as I once witnessed when the thermoneter was unusually high during the greater part of a summer. When this disease once prevails, it generally assumes different forms, which may, however, be arranged under three varieties, namely, the simple, the inflammatory, and the congestive typhus. These three varieties shall first be concisely characterized, and afterwards separately examined, in order to illustrate the rules of treatment fitted for each.

In strict propriety of language, typhus can only be denominated simple in a relative sense. It is in reality, the least complicated form of the disease, in which the febrile excitement, or hot stage, is completely developed, and in which there are

(b) It is undoubtedly true that a low temperature is most favourable to the rise and spread of typhus, since cold, and especially cold with moisture, have a direct tendency to depress the living power, but in New England the disease is known to occur at all seasons, as well at high as at low temperatures, though most common in the spring and fall months.

no decided marks of topical inflammation. The inflammatory typhus has the same open characters of general excitement as the simple; but with these are conjoined symptoms of some visceral inflammation. The congestive typhus is distinguished by the hot stage not being at all, or only imperfectly developed, and by simultaneous signs of venous congestion in one or more of the internal organs.

SECTION I.

THE SIMPLE TYPHUS.

The simple typhus has a first stage of oppression, a second of excitement, and a third of collapse. These successive stages, but more particularly the two last, bear a pretty exact ratio to each other, as to degree, but not as to duration. The stage of oppression is usually marked by a variety of symptoms, among which the following are mostly conspicuous. Paleness of the face; a peculiar look of dejection and weariness; some degree of darkness or livor in the integuments surrounding the eyes; prostration of strength; diminution of mental energy, and of sensibility; cold creeping sensations on the surface, or short hot and chilly fits alternately; loathing of food, nausea, or vomiting, whitish or clammy tongue; sense of weight or anxiety about the *præcordia*; occasional sighing and hurried breathing; aching, heaviness, or giddiness of the head; coldness of the back, and pain of the loins; a quick, low, strugling pulse, changeable as to frequency, and even irregular as to force. The stage above described sometimes comes on and reveals itself with rapidity; but generally it is more insidious in its approaches, and occupies, from first to last, a period of two or three days; when, after various irregular demonstrations of re action, it is succeeded by the second stage, or that of excitement, in which there is a complete developement, of the fever. In subjects who possess constitutional vigour, the tone and velocity of the circulation are now preternaturally increas-

ed, and the pulse accordingly becomes comparatively expansive, thrilly, and somewhat resisting; The cheeks are flushed with a dusky redness; the eyes heavy; and the lips parched. The respiration is quick; the skin almost invariably dry; the heat universally diffused, and steadily above the common point; the tongue foul; the thirst urgent; the uneasiness in the head increased; the sensorium in a highly susceptible state—every symptom, in fine, denoting an excess of excitement. This second stage of the simple typhus naturally holds a tolerably even tenor for some time. As it proceeds, however, the brain, at intervals, is usually disturbed with reverie, or slight delirium, coming on towards evening, when there is an exacerbation of the fever, and receding towards morning, when there is a remission; but the prostration of strength, which is at all times very evident, is generally greatest in the periods of the exacerbations, and the tongue is then drier. During the predominance of the excitement, the bowels for the most part have a tendency to constipation. The excretions as well as secretions also undergo gradual and material changes, which are evinced by the dark and offensive nature of the feces, by the peculiar odour of the breath and whole body, (c) and by the morbid appearances exhibited on the tongue, in the fluids formed from the liver, from the kidneys, and from other organs of secretion.

After six or seven days, sooner or later, according to its

(c) There seems to be a difference of opinion among medical men respecting the existence of any *peculiar* odour in this disease. We have extended our enquiries to a considerable number of physicians some of whom declare that they should be able to detect the presence of the disease wholly by the sense of smell, while others are not sensible of any peculiarity in this particular. May not this difference of opinion be readily accounted for, by supposing that some individuals are more susceptible than others, to the impressions which certain odours make upon the pituitary membrane? for if not greatly deceived we should not find it difficult to decide merely by the odour when we are beside a patient labouring under typhus. Many who believe in this peculiarity think it a strong circumstance in favour of the contagious nature of typhus, but it seems to me this is seeking aid where none is to be found, for an odour quite as peculiar, though very different, attends the brain fever of drunkards, but no one believes *delirium tremens* contagious.

mildness or severity, the stage of excitement gradually gives place to that of collapse, which is first announced by signs of depression in the voluntary powers; by a certain degree of relaxation in the skin; by a more variable and less concentrated state of the temperature; and by a notable diminution in the force of the circulation, the pulse being of less volume, softer, and undulating. In the mildest cases, the approach of the stage of collapse may be viewed as an indication of convalescence. For although the patient may complain of much general weakness, and sometimes of soreness in the flesh, with flying pains or cramps in the extremities, yet the tongue will be found softer and cleaner, the thirst diminished, the pulse slower, the breathing deeper and less frequent, and the skin of a natural warmth as well as moisture. Besides, the patient will pass much better nights, the functions of the stomach will be in some degree restored, with an evident improvement in the appearance of the feces, and in general with a lateritious sediment in the urine. Whereas, in the more marked instances of this sort of typhus, the supervention of the stage of collapse considerably augments the danger. The prostration of strength then becomes far greater; the pulse is commonly quicker, and always much weaker; the tongue fouler, darker, and drier; the voice fainter, and the articulation less distinct; the respiration shorter, feebler, and more anxious. The sensorial functions, too, are more disordered, and the countenance is more dejected, sunk, and inanimate. Added to these symptoms, the skin feels looser, and appears more shrivelled, while the temperature is no where so intense as in the stage of excitement, but variable in the course of the day, even on the central parts: and there is an increase of general restlessness, a more perceptible and peculiar fetor about the body, and often an irritating species of cough, which comes, as it were, in convulsive fits. In this state, the patient is disposed to lie upon his back. As the peril increases, he not only labors under subsultus tendinum, visual deceptions, low muttering delirium, and difficulty of deglutition, but has also a tendency to slide

downwards in the bed, and to draw up the feet frequently towards the body.

The foregoing description is intended to apply to the simple typhus, as it runs an unimpeded course; but between its slightest and its most marked forms, there are intermediate ones, whenever it extensively prevails. Some of the worst cases of it which I ever saw, existed in subjects who had been kept in a warm close atmosphere; and some of the mildest, in those who had inhabited cool, airy apartments. When properly treated from an early period, this variety of the disease generally terminates favourably; but when neglected or maltreated in the beginning, it frequently proves mortal, and then dissection commonly reveals some remains of an injected state of the capillary arteries, without any effusion of coagulable lymph, adhesion of parts, gangrene, or suppuration, which are the results of genuine inflammation. Some writers have stated, that, on minute inspection of the bodies of patients who died in simple fever, no derangement whatever could be detected. Nevertheless I am inclined to think, that such occurrences are exceedingly rare, although it cannot be questioned that in some cases, as I have myself witnessed, the morbid appearances are not sufficient to account for the unfavorable issue; and we are almost compelled to infer, that it chiefly depended upon an actual exhaustion of the vital principle, induced by the preceding excitation. At the same time, however, I cannot help suspecting, that in almost every fatal instance of the simple typhus, there is really a degree of lesion in the structure of some vital organ. In the present state of our knowledge, there are perhaps many morbid changes, which elude the inquisition of the anatomist. (d) In fact, until we are more thoroughly acquainted with the minutiae in the natural organization of some delicate and complicated parts, we cannot expect

(d) Many entertain the opinion, especially the French pathologists, that local inflammation, even in the commencement of typhus always exists in some one or more organs of the body, but in many cases we are unable, on dissection, to detect any thing decidedly morbid, or any material alteration

satisfactorily to detect those slender and latent lesions, upon which, in all probability, the suspension of function more frequently depends, than is usually conjectured.

In the more marked examples of the simple typhus, the circulation is evidently disordered from the beginning of the stage of oppression: when the re action has once taken place, the pulse continues to rise, unless timely controlled, through nearly the whole of the second stage; and the preternatural acceleration of the blood can only be said to subside on the approach of the last stage. It cannot but be supposed, that this long continued tide of the fever, though it may leave no visible traces behind it, must make considerable impressions on certain organs of delicate structure; such as the brain for example, through which currents of blood must have repeatedly flowed with more velocity and in greater quantities than natural. But in the mildest instances of this variety, it must be admitted, that no kind of organic lesion is produced, and they consequently end favourably; and in this they likewise resemble the simplest intermittent, in which the morbid excitement of the circulation does not give rise to greater local irregularities or accumulations of blood, than can be finally removed by the energies of the constitution alone, or by very gentle expedients of art. Almost all the larger viscera can sustain a certain degree and duration of vascular distension, without their structure being thereby at all impaired, or even their functions very greatly disordered.

The characters of the simple typhus, it will be perceived, vary according to the time of its continuance; and, as some of those variations demand correspondent changes in the mode of treatment, it is hoped, that the attempt which has been made to point out the pathognomonic signs of each of the leading stages, will be found both correct and useful. For

other than some more than usual flaccidity and softness of the flesh, with a dissolved state of the blood, and other fluids. In such cases we are forced to conclude that death occurs from mere exhaustion of the vital principle, however difficult it may be to attach very definite ideas to such an expression.

want of having carefully noted the different expressions, which this complaint puts on at different periods some systematic writers have almost entirely overlooked many of the most essential parts of the first and second stages; and by having dwelt principally upon the last, contributed to support the dangerous doctrine, that typhus is always a disease of real debility. There is, however, so wide a difference between apparent and real debility, that the practitioner, who would successfully conduct the treatment of febrile disorders, must attentively distinguish the one from the other. An opinion should seldom be formed wholly from external appearances, as they often mask the true character of fever, which for the most part can only be perfectly ascertained by penetrating beyond the exterior, and by inferring the state of the internal organs themselves.

In the first stage of the simple typhus, the debility is merely apparent, (e) and chiefly dependent upon the preternatural accumulations of blood in the veins about the head, heart, liver, and other internal parts, while there is less circulating upon the surface of the body, than in a natural state. In the second stage, the debility is still only apparent, being then the consequence of over-excitement of the heart and arteries; but in the third and last stage, beyond all dispute, the debility is real, as it is then connected with a general collapse, which sooner or later succeeds to a state of febrile excitement, as certainly as exhaustion follows a fit of intoxication.

Soon after the attack of this fever, there is a peculiar depression of the mental and voluntary powers, which had been justly placed, by authors, among those symptoms, that most forcibly press themselves on the attention of practitioners, and of which patients most frequently complain. This peculiar depression has generally been thought to indicate, that the

(e) Our author's remarks on the subject of debility are really important to the student; the more so because at the bed side of a typhus patient, without the knowledge here given, he would be very likely to come to a wrong conclusion. The opinion, that typhus, from the very commencement is a disease of *real* debility, has caused we have reason to believe, the death of more than one patient, within our own observation.

brain and nerves are primarily affected, as they constitute a medium, through which the mental and voluntary powers extensively operate. Accordingly we find, that several celebrated theorists, differing widely on subordinate points, agree in assuming, that typhus is a disease in which the energy of the nervous system is directly and greatly impaired. But, doubtless, far too much stress has been laid on this assumption, an assumption which, it is to be feared, has done considerable harm, by leading to the simulant treatment, and by rather fixing the attention upon one train of symptoms, than directing it to a comprehensive view of the whole.

The general system comprehends within itself many subordinate systems, the proper functions of which must harmonize to form perfect health; and the constitution of our frame is such, that no one part of importance can be materially disordered without re-acting on other parts, which in their turn likewise give rise to a series of morbid actions—and thus the whole system is finally drawn into consent. Every limited theory of fever, therefore, must necessarily be erroneous, whether founded upon diminished nervous energy, or any other plausible hypothesis; since it must be at once apparent to unbiassed individuals, that almost all the organs and functions of the body are brought, in one way or other, under the influence of the disease. Yet if any particular system be more affected than another, it is the sanguiferous, through which the permanent effects of fever are chiefly to be traced, and by which the state of the brain and nerves, at least, seeni ultimately to be regulated, how much soever the nervous system may be immediately concerned in the primary impressions. So great indeed, in a practical point of view, is the importance of attending to the state of the circulation in febrile complaints, that guarding against what are called determinations of blood to the different viscera, and removing preternatural accumulations, whether congestive or inflammatory, when they actually take place, will be found to constitute one of the grand secrets of successful treatment.

It is not perhaps easy to distinguish simple excitement of the circulation from actual inflammation. Yet every experienced and unprejudiced practitioner will readily allow, that fevers do occur, in which there is a general increase of arterial action, without inflammation. But what is the difference between simple excitement of the circulation and inflammation? The chief difference seems to consist, not in the state of the general circulation, but in that of particular parts. The action of the heart and larger arteries is alike augmented in both; but there is in inflammation a greater local accumulation of blood, than in simple excitement. Nevertheless topical accumulations of the blood take place in disorders of simple excitement; and we often see it spontaneously terminate, by what may be called pure resolution; but such a termination is comparatively rare in actual inflammation. Still it must be confessed, that the topical accumulation attendant on simple excitement, has generally a strong predisposition to inflammation; and may easily pass into the latter state, from the heart and larger arteries continuing to propel too much blood into the capillary branches.* In short, simple excitement of the circulation and inflammation have naturally an affinity, and may so mutually approximate as to be lost in each other. In simple excitement, the blood is almost equably diffused throughout the system, in inflammation it is superabundant in particular parts. Yet when the blood is superabundant in any particular part, it must pass beyond a certain measure before it can constitute inflammation; for we would not denominate the increased afflux of blood in the intestines inflam-

* Is it probable that there is a greater loss of balance between the arteries and veins in inflammation, than in simple excitement of the circulation? The relations existing between the arteries and veins in health have been well explained; but it appears to me, that we have not been sufficiently attentive to the conditions which relatively exist between these two systems of vessels, in many acute and chronic diseases.

Since the first edition of this work, however, was published, my friend, Dr. Abercrombie of Edinburgh, has taken up this subject with respect to apoplexy, and has discussed it in most masterly manner.

matory, which is produced by a purgative, neither that of the skin which is produced by common rubefacients. And what is here asserted of a part, may also be asserted of the whole arterial system: for in like manner we would not call inflammatory, the condition which follows the drinking of a few glasses of wine. Excitement, local as well as general, may exist without inflammation, but inflammation cannot exist without excitement.

The state, then, of the circulation in the second stage of the simple typhus necessarily resembles inflammation; yet, in strictness, the organs most affected by increased accumulations of blood, may be said to be excited, rather than positively inflamed. Although, as shown in the preceding pages, this stage may, and sometimes does, proceed without decided inflammation, yet as topical inflammation may arise during its existence, the medical attendant should never be too confident, that the disease will always continue to be one of simple excitement. On the contrary, he should be constantly upon his guard from the commencement; and, day after day, make the most scrupulous inquiries, that he may be enabled to detect, and, if possible, to arrest the very first appearances of inflammation supervening in a vital quarter. The pathology of the simple typhus is applicable to almost all the mildest forms of other fevers; for from whatever cause they may originate, or however they may differ in minor respects, the states of the vital organs will be nearly similar.

It seems an acknowledged law of the animal economy, that when any part of the body is once put into a state of irritation, there is a greater flow of blood than natural in that direction. This law should always be remembered in typhus and similar fevers, which necessarily give rise to more than one local irritation at the same time. If opportunely attended to, simple irritation may generally be soon removed, but if neglected in its origin, it may tend to produce not only an increased afflux of blood, but an actual inflammation, in some part. Since then from a variety of circumstances, typhus may, however

simple in its outset, become connected with local inflammation, that modification of the complaint shall be next brought under the review of the reader.

SECTION II.

THE INFLAMMATORY TYPHUS.

In pleurisy, and similar disorders, the seat of fever may be local, its effects general, and its nature inflammatory, but some ingenious authors, with Ploucquet and Clutterbuck at their head, seem to me to have proceeded too far, in confidently asserting that this is actually the case in what are called idiopathic fevers. As an example in point, typhus undoubtedly sometimes begins and terminates without topical inflammation; and as inflammation may occur in one or more parts, without ever producing an infectious distemper, with the true characteristics of typhus, it is evident, that inflammation is not its inseparable and essential constituent. When, therefore, this peculiar disease and inflammation are combined together, it appears only reasonable to conclude, that the latter may have been produced by cold, or any other common cause of fever, operating with the contagion; or that it may have arisen as an effect of the excitement of the heart and arteries, favored by some predisposition to inflammation in the part affected. Some authors have contended, that the inflammation which accompanies the complicated forms of typhus, occurs with the fever, or even precedes it, and others, that it merely follows as a consequence of the general excitement. According to my observations, the local inflammation occasionally commences as soon as the fever itself, but generally arises during the stage of excitement; and hence, perhaps, it may be fairly inferred, that, for the most part, it stands in the relation of an effect, rather than a cause of the fever. If we reflect, that more or less venous congestion attends the first stage, it will not seem improb-

able, that, by a preternatural distension of the vessels, it may leave a morbid tendency in some organ or other, which might pass into inflammation, by the excitement of the second stage. It usually happens in what are called symptomatic fevers, that the inflammation is limited to one part in particular, but this does not so generally obtain in typhus: for though one organ may exhibit by far the strongest evidences of inflammation, some other part will often be affected in a less degree; and this surely favours the notion, that the topical disorders are commonly the products of the general excitement.

In viewing typhus always as a general disease, and deeming its seat, like that of the mind, unapproachable, some noted authors have neglected to investigate its effects on the viscera and their appendages; and of course, they have almost entirely overlooked those local affections, with which it is frequently connected, and which are the causes of its fatal termination in its inflammatory variety. Some eminent pathologists, however, have of late forcibly called the attention of the faculty to the morbid anatomy of fever; and this subject seems now to be in a fair train of investigation, which promises not only to correct many prevalent errors, but eventually to lead to the establishment of general principles, in the treatment of all acute fevers.

It was formerly noticed, that in the simple typhus there is generally a morning abatement and an evening exacerbation of the fever, and this is the case in most fevers of a simple character; but whenever typhus is complicated with inflammation, and the remark is alike applicable to other fevers, the morning remissions are scarcely ever observable, the continual irritation of the local disorder maintaining a more constant elevation of the temperature. It might almost seem superfluous to point out this circumstance, but some ingenious men have pretended, that where the fever at all remits it is not the genuine typhus; and by a party of equally erroneous reasoning, it might be said, that the simple scarlet fever is altogether a different disease from the scarlatina anginosa, because the former does and the latter does not remit. In typhus, the

brain, or its meninges, the spinal cord or its coverings, the lungs, the pleura, the mucous membrane of the trachea, the stomach, the liver, the peritoneum, the small and large intestines, are the parts most liable to be attacked by an acute, or sub-acute form of inflammation. Correctly speaking, however, the acute, and sub-acute forms of inflammation merely differ in degree; and, therefore, those relative terms are only meant to express the higher and lower degrees of the same morbid state.

Though the sub-acute occasionally changes into the acute form of inflammation, and *vice versa*, yet each of these forms commonly begins and proceeds with its peculiar characters. The acute form generally arises on the first, second, or third day of the second stage, and being most active, is clearly denoted. Whereas, the sub-acute form usually arises after the third day of the second stage, and being less active, is at first obscure; so that the practitioner is for some time left to form his opinion, respecting its site and extent, rather from uneasiness in particular regions, than from violent pain, and other palpable symptoms, attendant on the acute form.

Whenever, after an attack of typhus, there is a distinctly felt and fixed pain in the head, chest, or abdomen, with great quickness of the pulse, dryness of the tongue, anxious breathing, and much general oppression,—the presence of the acute form of inflammation may be inferred. If there be little or no pain, and the pulse should become very frequent, the respiration more hurried, the tongue more parched and foul, and the general oppression greater,—the approach of the sub-acute form may be apprehended. But as these modifications of inflammation require correspondent differences of treatment, it is proper that they should be more particularly noticed.

So far as my remarks have extended, the brain (f) and its

(f) We are unable to say how much more frequently the brain is the seat of inflammation, in England than other viscera, but with us I am inclined to believe that other parts, as the stomach, bowels &c. are as frequently affected as the brain, especially when we consider that other organs, and the brain, are affected at one and the same time, in the same individual.

investing membranes are more subject to inflammation in typhus than any other parts of the system. When the acute form of inflammation exists within the head, it is generally marked by various signs. Great irritability; an anxious oppressed, or intoxicated cast of the countenance; dry, foul tongue; quick, vibratory pulse; flushed, turgid face; * deep pulsating pain in the head; increased heat of the temples, forehead, and hairy scalp; throbbing of the carotid arteries; tinnitus aurium; redness and morbid sensibility of the eyes: and more or less disorder in some other of the external senses. There are generally transient pains in the limbs; oppression of the praecordia; torpidity of the intestines; uneasy respiration, attended with heavy sighs; nausea, retching, or vomiting, augmented on motion; fretfulness, and jactitation. Watchfulness, confusion of mind, visual illusions, and delirium, follow each other in quick succession. If the inflammation should uninterruptedly advance, to these symptoms succeed, indifference to surrounding objects: faltering or imperfection of the speech; gradually increasing stupor: bloatedness of the face; brown or black parched tongue; tremors of the hands; stupid,ensus, watery eye; squinting or dilatation of the pupil; paralysis of one of palpebræ; vibices or petechiae; oozings of dark blood from the mouth and nostrils; stertorous breathing, general convulsions; relaxtion of the sphincter muscles, and other mortal signs.

But sometimes acute inflammation of the brain in typhus is not to be discriminated by the succession of symptoms above described. In such cases, it is mostly to be recognised in the beginning by a glary blood-shot eye, a contracted pupil, an agitated expression of the countenance, and a peculiar species of moaning, which scarcely ever ceases for a moment; and to these indications, confusion of mind, tremors of the muscles, and coma often rapidly succeed, and the patient expires at

* In a few instances of this nature, I have known the face even paler than natural; the contrary, however, as stated above, is generally the case.

last with a bloated, pale face, and laborious breathing. The pulse in some instances of this nature is less disturbed than might be imagined from the violence of the attack, and I have known it at first little above, and before the termination even fall below its natural standard. In the commencement of most affections of the brain in fever, one of the best tests is to desire the patient to shake the head: if inflammation exist he will move it very slowly and fearfully, and complain of a great increase of uneasiness; and where it is quickly and stoutly shaken without much uneasiness, little or no danger need be apprehended in that quarter from inflammation.

When the brain is early and actively inflamed, typhus sometimes passes on with great celerity to a mortal issue, the stage of excitement not occupying more than forty-eight hours, and the subsequent one of collapse a still shorter time. In general, however, the acute inflammation of the brain proceeds less rapidly, and the disease is protracted a little beyond the first week. But the sub-acute inflammation of the same part, next to be noticed, is much more common than the preceding in typhus, and occupies, from first to last, a considerably longer period.

For some days, the sub-acute inflammation of the brain most frequently steals on in typhus by almost imperceptible approaches. At first there are little more than the usual degrees of head-ache and of vertigo, with general lassitude, fugitive pains in the muscles or joints, torpid bowels, and uneasy feeling at the pit of the stomach commonly accompanied with loathing of food, and a disposition to sickness of stomach, especially on any sudden change of posture. The pulse is small and quick, but the carotid, and even the temporal, arteries beat with rather more than ordinary force. The tongue at first is covered with a dirty, whitish fur; the cheeks are alternately pale and flushed throughout the day; the countenance has a heavy, wearied expression; and the eyes often feel uneasy, as if small particles of sand were in them. Besides, some of the rest of the external senses are almost al-

ways disordered, particularly the hearing, which, though occasionally more obtuse, is generally more acute than natural, and the head cannot be shaken without an increase of uneasiness. The forementioned symptoms continue without material alteration for three or four days; although the patient may often be remarked to sigh, breathe quicker, and grow more irritable, as well as restless, seldom remaining long in the same place or position. At length, pain of the head, and uneasiness in the orbits of the eyes are more severely felt; the eyebrows are sometimes suddenly knit together; the arms tossed about the bed; or one or both hands now and then pressed against the forehead. The pain of the head continues to increase; and in two or three days more there are sensations of an indescribable uneasiness, constantly and distinctly referred to the brain. The eyes are now rather blood-shot, and intolerant of light; the anxiety of the praecordia is much augmented; the respiration more hurried; the heat of the surface more elevated; the face permanently flushed; the tongue drier and stiffer; and the involuntary sighing more frequent. As the inflammatory affection advances, day after day the sensorial functions continue to be more and more disturbed. At last, Delirium becomes unceasing, when signs of an oppressed brain gradually make their appearance; under which the patient slowly sinks into dissolution, with hiccup, petechiae, subsultus tendinum, an appoplectic expression of the features, and a red, glaring eye, floating insensibly in an envelope of mucus. When connected with the sub-acute kind of inflammation of the brain, typhus may continue from thirteen to twenty days,[g] and during its course, have a considerable variety of expression; but the symptoms, already enumerated, have appeared the most common and conspicuous in the examples of this nature, which have fallen within the sphere of my observation.

[g] In New England the disease frequently continues much longer, even forty or fifty days; these, however, are extreme cases.

The acute and sub-acute forms of inflammation, agreeably to my anatomical researches, produce in typhus nearly the same morbid appearances of the brain or meninges, the traces left by the former being merely somewhat deeper, and more extensive. The pia mater almost always exhibits marks of a previous increase of vascularity, with some coagulable lymph effused between it, and the arachnoid coat. Adhesions are often found in the convolutions and hemispheres of the brain; and the medullary part, on cutting, is covered with red points. The choroid plexus is generally turgid with blood or the ventricles frequently contain a serous sort of fluid, especially in very young subjects; and pus is sometimes found in certain parts of the brain. The appearances, then, about the brain on dissection, are materially different in the inflammatory, and in the simple typhus; for genuine inflammation in the former leaves, as its traces, effusion of coagulable lymph, adhesions, suppuration, and occasionally even some approaches to gangren itself; while in the simple typhus, only some partial injections in the capillary system are found, with perhaps an exudation of thin serum, which had taken place in the last stage of relaxation. This is not a theoretical but a pathological distinction of great importance, since, however closely allied in many respects, the pure examples of the simple must not be confounded with the complicated examples of the inflammatory typhus; for though the simple typhus in the last stage may be attended with a permanent delirium, and that delirium with an injected state of the capillaries in the brain, yet both these states of the sensorium are combined with an universal relaxation, which demands a treatment very different from the delirium of actual inflammation, as shall afterwards be explained.

The medulla spinalis or its membranes are often inflamed at the same time as the brain or its meninges; but this connexion is not necessary, as I have known inflammation attack the former without affecting the latter, and the converse. Though inflammation of the spinal cord and its coverings is much more

frequent in idiopathic fever than writers had formerly supposed, yet it is not an invariable attendant; for cases have fallen under my inspection where no sign of it existed during the progress of the disease, and where no vestige of it could be discovered by examination after death. When inflammation is seated in the upper portion of the spinal marrow or its membranes, there is pain in the neck, increased by pressing the fingers forcibly on the cervical vertebrae, and it is almost always accompanied with pains in the upper extremities resembling rheumatism, and generally with an uneasy, variable respiration; but when the under portion is inflamed alone, the pain is in the back, increased in like manner by pressure on the dorsal or lumbar vertebrae, and the lower extremities are affected with pains or cramps, while the urine is seldom regularly passed. So far however as my observation goes, patients most frequently complain of uneasiness throughout the whole course of the spine, when it is minutely examined by pressure; and then, pain following the spinal cord, the affection of the upper and lower extremities, the uneasy, variable state of the respiration without pain in the chest, and an uncomfortable feeling about the pit of the stomach and diaphragm, are among the principal pathognomonic signs. Yet in inflammation of the spinal cord there is very often a remarkable soreness over all or the greater part of the body, so that if the skin be any where pressed, the patient complains as much as if inflammation existed under it; but on cross-questioning, they generally refer this soreness distinctly to the integuments, and like the fore-mentioned pains in the extremities, it is also so much increased by motion as to make some persons cry out, and to excite a silent expression of suffering in the countenance of others. Nevertheless this soreness of the flesh sometimes exists in fever without inflammation of the medulla spinalis or its membranes; and then it is probably dependant upon the injected state of the capillary vessels accompanying the cutaneous nerves, by which their sensibility is augmented.

Inflammation of the spinal cord may be acute or sub-acute, as in the brain, but the latter is much more common than the former ; and it will therefore sometimes happen that the inflammation is only obscurely declared for some days, as in the following instance. My opinion was requested for a patient who had laboured under fever for several days, and whose strength seemed to be much exhausted. The respiration was short, and impeded, sometimes quick and at other times slow, and there was an occasional gasping as if for fresh air. The countenance was anxious, but not the least uneasiness existed in the head, even when repeatedly shaken : the tunica adnata was perfectly white, and no intolerance of light or sound existed. No pain was felt in the chest, and the most forcible pressure could be borne over all parts of the abdomen without shrinking, though an oppressive feeling of weight and tightness was complained of at the pit of the stomach. There were now and then slight twichings about the muscles of the upper lip, occasionally violent pains in the upper and lower extremities, but without any uneasiness in the direction of the spine. The tongue was very foul and brownish, the lips somewhat of a leaden hue, the pulse about 130 in the minute, small, soft, but jerky, and the skin hot, and damp in some places. The patient lay on the back, rolling the head now and then on the pillow, and though motion of the extremities gave pain, yet the position of the legs and arms were frequently changed. Laxatives were prescribed with small doses of Dover's powder, but without any relief, and the next day, the patient complained of some uneasiness in the neck, which gradually extended down the greater part of the spine, while the pains of the upper and lower extremities became worse, and some tenderness supervened in the region of the liver. Blisters were repeatedly applied over the spine, and one over the region of the liver, the bowels were kept regularly soluble, and under this plan, together with an abstemious regimen, all the symptoms of the spinal affection disappeared. Other instances equally obscure in

their origin have come under my care, in which pains in the upper and lower extremities, with an irregular respiration, were for some time the only indications of the inflammation within the vertebral canal ; and as these pains might be confounded with rheumatism, it may not be superfluous to mention, that they are unaccompanied with any swelling about the joints, are generally combined with more or less feeling of numbness or tingling, and often suddenly shoot from one distant part to another. Hippocrates has observed that pain in the neck is an unfavourable sign in fever : when present, for the most part, it certainly indicates an inflammatory affection of the spinal cord : and the pain in the back, which is so common in typhus, is generally an indication of the same kind, when accompanied with pains in the lower extremities, and when increased by pressure on the lumbar vertebræ. Men whose sensorium is much exercised by important or anxious business are much more liable to inflammation of the brain than labouring men of the lower orders, who comparatively pass a sort of animal existence, in which the mind is little exercised ; and though I do not know whether the latter be more liable than the former to inflammation of the medulla spinalis, yet it is remarkable that in my practice this affection has occurred oftenest in females.

In typhus, the lungs, and their connexions, especially in very cold or variable weather, sometimes subject to the acute but more frequently to the sub-acute, inflammation ; and as the breathing is sometimes anxious, even in the simplest cases of this fever, we ought to be the more attentive, that we may be enabled to unmask the most insidious attacks of pulmonic inflammation. When the pleura and lungs are affected with the acute species of inflammation, the local disorder is sufficiently obvious. With the ordinary symptoms of typhus, a permanent pain is then felt in some part of the chest, generally acute, though occasionally obtuse, but in either case it is much increased by deep inspiration. There is a sense of weight or con-

striction across the breast, the respiration is always laborious, the thorax heaves, as if under some oppressive load, and the alænasi are thrown into perceptible motion. The patient is extremely restless, and has a frequent troublesome cough, which augments both the pain in the side and the difficulty of respiration; most frequently he cannot breathe with any degree of ease when recumbent, but is obliged to have the trunk considerably elevated. The features altogether indicate surprise, alarm, or anxiety; the eyes seem prominent; the cheeks and lips are generally of a deeper colour than natural, yet in some cases the face has a pale, bloated appearance. The tongue is commonly foul in the middle, and of a dark red round the edges; the pulse is sometime slow, full, and strong, but in other instances, quick, small, and weak. As in almost all local inflammations, the temperature of the skin varies considerably in the day, and partial perspirations are not uncommon, especially when the pain of the side is acute. Several cases of typhus have occurred in my practice, with as formidable a train of symptoms as those above specified: in some of them the difficulty of breathing was at first apparently spasmodic, abating and increasing alternately, as happens in certain forms of asthma. When such an occurrence is noticed in this fever, it may be generally considered as the precursor of the concomitant of pulmonary inflammation. The practitioner, therefore, should be very cautious about the exhibition of any stimulant, such as æther, more particularly as the pulse in those examples is almost always low and oppressed. Persons subject to chronic affections of the bronchia attended with a copious expectoration are exceedingly apt, under the operation of typhus contagion, to be attacked with an acute inflammation lining the mucous membrane of those parts; and then the disorder of the chest assumes the character of peripneumonia nota, the face being pale, the lips somewhat livid, the pulse oppressed, the breathing laborous and rattling, from an accumulation of phlegm in the bronchial passages. This form of the

disease is sometimes rapidly fatal, especially if it occurs in an enervated habit; and on dissection the lining of the bronchia is found highly injected, with much mordic mucus and a portion of pus in the bronchia themselves. The lungs, too, are congested in general with dark blood in some places, so that if a little be cut off, it will sink in water, which never happens in a perfectly natural state of the lungs.

When typhus is complicated with the acute form of pulmonary inflammation, it often terminates fatally within the first nine days, and towards its close there is usually much disorder of the mental faculties. On examining the bodies of patients who died of this combination of disease, I have generally found some degree of congestion in the brain, and have seen large portions of the pleura literally coated with coagulable lymph, and considerable quantities of serum effused into the chest. In some instances the pleura alone was affected, and in others the inflammation had extended to the substance of the adjacent lung, in which there was either great congestion, a collection of pus near the surface, or an extravasation of lymph or of blood. Marks of increased action were occasionally observable on the mucus membrane of the trachea, and likewise, though rarely in comparison, on some part of the pericardium; and it may be remarked in passing, that though nosologists have pretended to distinguish inflammation of the pleura of the left side from inflammation of the pericardium, there are no signs which can be depended on as strictly diagnostic between them.

The thoracic inflammation, however, which is most frequently seen combined with typhus, assumes the sub-acute form and apparently commences in the mucous membrane of the trachea, or in the pleura. It is to this modification of the disease that I am desirous of more particularly directing the attention; because, as it is less calculated to strike the senses with alarm than the first mentioned, it may more easily betray the medical attendant into a false prognosis, or into an erroneous practice.

The sub-acute form of inflammation most frequently begins in the trachea like an ordinary catarrh. Then there are mostly tension and pain across the forehead; heaviness, stiffness, and slight tenderness of the eyes; flushing over the cheeks, with a deepened redness of the lips, and general fulness of the face; sense of uneasiness in some part of the trachea; huskiness, or hoarseness in the voice; uneasy respiration; and more or less constriction, weight, or soreness in the thorax. In addition to these symptoms, a frequent cough exists, which at times excites retching or vomiting, and which is at first dry, but in two or three days is attended with an expectoration of loose or viscid mucus, occasionally streaked with blood. For some days, these appearances undergo little change, and even may at last spontaneously disappear: yet most frequently the breathing daily becomes more oppressed, and the cough harder especially at nights. Whenever the patient falls into a short sleep, the chest heaves with a more than ordinary effort, and the lips are not closed as usual in that state; on the contrary, his mouth is considerably opened, and he breathes interruptedly, with an audible, thick, purring noise. He is generally awakened by a fit of coughing, when he usually spits up a little mucus, and continuing for some time in a state of irritation, chiefly complains of head-ach, uneasiness in the breast, thirst, and dryness of the mouth. As the pulmonary disorder advances, the pulse is accelerated; and there are now and then rather sudden attacks of shortness of breathing, probably proceeding from an accumulation of phlegm, or from some spasm of the bronchial passages, excited by the irritation of an inflamed surface. But, independently of such attacks, the respiration by degrees grows more laborious and noisy; and obscure pain soreness, or distress of some kind is felt in the chest, particularly on change of posture, yawning, sneezing, deep inspiration, or coughing. The system becomes more irritable, the motion of the alæ nasi greater, the state of the skin and temperature more variable, the countenance more anxious, and the lips

and tongue of a more leaden colour. The head, heavy and somewhat vertiginous from the first, is at length troubled with continued delirium ; and after much suffering the patient expires, under coma, tremors, convulsions, or suffocation. The above is not an uncommon mode in which the sub-acute form of pulmonary inflammation proceeds, and it is usually protracted a little beyond the second week. But at other times it holds a different course ; and when the mildness of its symptoms indicates neither immediate nor remote danger, an unexpected and often mortal change takes place, from the inflammation having suddenly increased in the trachea or from its branches, or from its having extended itself to the substance of the lungs. In three or four instances, I have seen the inflammation begin as a common *cynanche tonsillaris*, and after having occasioned some ulceration in the throat, spread to the wind-pipe, and produce a most alarming combination of symptoms.

In examples of the above nature, I have generally found the lining of the trachea and especially of the bronchia very vascular after death, and a considerable quantity of mucus in the bronchia, sometimes mixed with purulent matter. Occasionally the pleura and lungs have also exhibited traces of inflammation, and there has often been some congestion apparent in the brain. In typhus, preternatural accumulations of blood occasionally take place, in the capillaries of the mucous membrane of the trachea, or of the bronchia, with little or no cough for a few days ; and the increased fulness is at first only indicated by a slight purring noise in the breathing, or by a little mucus or lymph being hawked up in a slight effort, either with or without some streaks of blood. Such cases should always be particularly attended to from the beginning, because the symptoms are very apt to proceed insidiously ; so that life is sometimes at last endangered by an accumulation of phlegm in the bronchial passages, from a slow but progressive inflammation.

When the sub-acute form of inflammation attacks the pleu-

ra chiefly, the breathing, if narrowly watched, may be observed to become quicker and more anxious, especially in the horizontal posture. Cough and uneasinesss are almost always excited on a full inspiration ; and there is, for the most part, pain or soreness in the right or left side, or under the sternum, with a feeling of weight or tightness in the breast. Most systematic writers assert, that pain is always clearly manifested when the pleura is inflamed ; but I have attended some cases which proved the contrary, and the following one may be reported as a specimen. In a middle aged man, who had been infected from a mild typhus, under which his wife laboured, pectoral symptoms were developed with those of the contagious fever. During the whole of his illness, he made no complaint of pain in any part of the thorax, but simply of slight soreness, with an ill-defined uneasiness in the left side ; and these were accompanied by short alternations of heat and cold, and by a frequent hard cough, which was always worse at nights. Although his breathing continued rather oppressed, and the sensorial functions were occasionally deranged, yet he had no decidedly dangerous symptoms, until about the end of the second week, when the respiration became extremely laborious, and soon afterwards he died suddenly, from apparent suffocation. On examining the body, no lesion of consequence could be discovered, except the remains of an inflammation in the left pleura, and an imposthume in the left lung, the rupture of which had been the immediate cause of death ; and doubtless both the inflammation and abscess had originated in the course of the fever, as the patient had been in perfect health before he was infected.

When the inflammation ends in an abscess, the uneasiness in the breast abates ; but the breathing becomes more laborious, and there are chilly and hot fits, with copious sweats, and great loss of strength. The most common termination, however, in instances of this kind, is by an effusion of serum into the bag of pleura of the right or left cavity of the thorax ; and although it often protracts life, as being a substitution of a less for a great

er disease, yet patients generally sink under it at last. But in every case attended with difficult respiration, there is always a danger of serious effusion into the substance of the lungs, from the violence of their own increased action.

It now and then happens in typhus, that there are sudden irregularities in the circulation of the blood in the chest, which almost as quickly recede, and are followed by similar irregularities in the head, and both may at last disappear without doing material harm. But whenever such irregularities of the circulation occur, they ought to be constantly noticed, lest they should eventually become permanent, and thus injure the structure or functions of the parts affected.

Delirium is a common attendant on typhus at all times, but particularly when any part of the thorax is attacked with inflammation which, impeding the transmission of the blood through the lungs, tends to prevent its free return, by the veins, from the brain. This circumstance, together with the increased fulness of the arteries of the head, may perhaps go far to account for the frequent disturbance of the sensorium in such cases; but it is not improbable, that the delirium may sometimes in part depend on those inexplicable sympathies which exist in the nervous system.

Four instances of contagious fever have come under my care, in which the mucous membrane of the trachea appeared to be chronically inflamed, the disease in all of them continuing from two to three months. Nothing very remarkable occurred for the first six or seven days of the attack in these cases, except that there were occasional heats and chills, unusual prostration of strength, heaviness as well as great uneasiness in the head, and an uncommon irritability of the stomach. After this period, the respiration grew more hurried, and a troublesome cough arose, which much augmented the head-ache and sickness. For several days the cough remained dry, but it afterwards became moist; the sputa at first rather resembling the white of an egg, but finally appearing more viscid and opaque. The pulse throughout was feeble and quick, the

tongue foul, the heat variable, the bowels irregular; and although the patients frequently appeared drowsy, for the most part they obtained very little sleep. In two of the persons thus affected, the complaint continued nine weeks, and although it assumed a consumptive character before death, the signs of genuine typhus could easily be recognized to the last. After having produced an extraordinary degree of suffering, the other two cases ended favourably, but the convalescents were long in an emaciated and enfeebled state; an abatement of the vomiting, some desire for light food, and a tendency to quiet sleep being for some time the only appearances which argued recovery. Not having had an opportunity of ascertaining the morbid appearances after death in any instance of this form of typhus, I cannot speak positively as to the real character of the pectoral affection, but it most probably consists in a species of chronic inflammation of the trachea; and I am the more confirmed in this opinion, because it is that formed by Mr. Croudace, from repeated reflections upon his own sufferings.

The same distinction, which has been made with respect to the cerebral and thoracic inflammations, may be applied with equal correctness to those which not unfrequently attack the abdominal cavity in typhus, for they are also of an acute or sub-acute form, and shall now be concisely exemplified. Though I have attended several typhous cases, in which abdominal inflammation existed, the symptoms have seldom been sufficiently distinct and defined to enable me to point out the precise seat of the inflammation. In fact, this cannot be so readily accomplished as some have imagined, because gastritis, enteritis, and the like affections of the belly, have many signs in common, and because the inflammation is most frequently not confined to one part, but extends to others; a circumstance which most practical writers have not sufficiently regarded, in their descriptions even of simple acute inflammations of the abdomen. In adverting, to the abdominal inflammation of typhus, it is not my wish to divide them with systematic particularity and precision, but rather to describe them as they

have been presented in cases which occurred in my own practice.

It has just been noticed, that inflammation attacks the mucous tissue of the trachea bronchia in typhus, and the same tissue of the stomach, intestines, and bladder is liable to be simultaneously or separately the seat of inflammation. In many cases of an ordinary catarrh, the mucous membrane of the nostrils, of the tongue, of the fauces, and of the respiratory passages is more or less continuously disordered. If we extend our observations further, we shall find, that the mucous membrane of the eyes, of the frontal sinusses, and even of the stomach, bowels, and bladder, is in some degree implicated; as the watery appearance of the eyes, the uneasiness over the forehead, the prostration of the appetite, the vitiated secretions of the intestines, and the mucous cloud or sediment in the urine seem clearly to indicate. But it is especially in those diseases which bear the character of contagion, that the mucous membranes are apt to be so remarkably affected; and hence in the scarlet fever, in the measles, in the hooping cough, and in typhus, the condition of this tissue deserves particular consideration. The disturbance in the circulation of the mucus membranes of the stomach or intestines does not amount to inflammation in the mildest modifications of typhus, and is probably similar to that which we observe on the tongue or fauces; but in the more complicated examples, it often passes on to inflammation, and either exhausts the patient by its continuance, or terminates in ulceration or gangrene, as I have ascertained by dissections.

When an acute inflammation invades the lining of the stomach or bowels in typhus it is generally denoted by some degree of pain and tenderness, by the stools containing unnatural mucus, or coagulable lymph with or without some admixture of blood, by unusual flatulence, by a short hurried respiration, by an anxious countenance under pressure of the affected region, by great prostration of strength, by a small quick pulse, and by the patient lying prostrate on the back, with the knees mostly elevated and the feet drawn upwards. If this

acute inflammation be in the interior of the stomach, or of the upper portion of the intestines, nausea, retching or vomiting is generally present, with a sense of heat, and an intense desire for cold drinks; but if the inflammation be seated in some inferior portion of the gut, and particularly in the colon, these symptoms may all be absent. Even in this kind of inflammation, patients are now and then easy when they lie perfectly still, and only complain of pain when pressure is applied, or when they move, as in getting up, for example, to evacuate the bowels. It is, I know, the opinion of some distinguished pathologists, that inflammation of the lining of the stomach and bowels cannot exist without some permanent pain and tenderness. But this opinion is erroneous. Several instances have come under my care where the sub-acute species of inflammation commenced and proceeded in typhus, without pain or tenderness; and though in some of them ulceration was finally produced, yet they were only characterised in their course by a sense of fulness, and flatulence of the belly, by fluid, slimy, acrid stools, by a hollow appearance about the eyes, by an increasing depression of muscular power, and by the supine position of the body. When inflammation attacks the mucous membrane of the bronchia, it not unfrequently advances to a fatal termination without pain, which shows the naturally low sensibility of the part; and a like observation might be justly made in many cases, in reference to the mucous membrane of the intestinal canal, particularly when the brain is embarrassed in typhus. Towards the conclusion, considerable quantities of blood are sometimes passed by the rectum, which rapidly sink the strength; and in such instances the villous coat will commonly be found much ejected, though at the same time it ought to be remarked, that similar eruptions may proceed from the liver, as my friend Dr. Ayer has ably illustrated, in his work on marasmins. When the bowels are apparently lax nearly from the commencement of typhus, on cautious inquiry it will generally be found, that the bile is secreted in unusual quantity or quality, that some irritating scybala are retained in the colon, or that there is a degree of inflammation in some

part of the villous coat of the bowels. Indeed wherever the stools are small, frequent, and mixed with considerable portions of glary mucus, or copiously liquid and oily like thin paint, and in either case accompanied with tenesmus or gripping, the practitioner has cause to dread inflammation, even if pain and tenderness should be absent. The tongue is variously affected in disorders of the mucous membrane of the bowels. In some of those irritations, which hardly deserve the name of inflammation, it is of a light or deep red round the edges, but it is generally foul in the middle, the thirst is always urgent, and eructations of wind are not uncommon. Whenever the tongue is observed to be of a blood red, the mind should be particularly turned to the stomach and intestines; for though this often exists without actual inflammation, yet it generally indicates some degree of gastric or intestinal irritation, which may be converted into inflammation. Small or considerable portions of the mucous tissue may be inflamed at the same time, but it generally happens, that the secretions of most are vitiated; and this circumstance has led some to suppose, that there is a sort of continuous sympathy between mucous membranes, by which a disturbance in the functions of one is apt to involve the rest. If the mucous membrane of the bladder should be inflamed, it will in general be denoted by pain in the region of that organ, and by a frequent desire to pass the urine, which is then commonly loaded with the morbid secretion of its interior surface; and as previous retention of urine is sometimes the occasion of such an attack, in all cases of fever the practitioner should make a point of ascertaining whether the patient be sufficiently relieved every day. Inflammation of the mucous membrane is sometimes combined with a similar affection of the peritoneal covering of the stomach and intestines: but it more frequently happens that inflammation exists in some part of the peritoneal coat, while the mucous tissue is merely in a state of simple excitement; nor will it be always so easy as might appear in books to say, at the bedside, when the mucous, and when the serous membrane only is inflamed, as some of the symptoms are common.

If acute inflammation be seated in the peritoneal covering of the stomach or intestines, there are mostly deep continual pain, and soreness of the integuments increased on pressure; retching, vomiting, anorexia; desire for cold acidulous drinks; short, quick respiration; fulness as well as flatulency of the bowels; considerable prostration of strength; restlessness, and anxiety. The patient almost invariably lies upon his back, frequently tossing the arms about, moving the feet, or changing the position of the head. If desired to turn upon his side, it gives him considerable uneasiness in the abdomen: and if suddenly raised into the upright posture, he generally begins to eruct, retch, or vomit. The pulse is small, and sharp, and in others below a hundred in the minute;* the tongue foul in the centre; the mouth clammy; the taste vitiated; the bowels are for the most part bound; the lips parched; and the countenance expressive of much distress. The pain of the belly is augmented by yawning, by coughing, or by drawing the breath deeply down, and sometimes even by the blandest liquids, which are usually rejected, unless taken in small quantities at once. If the pain be acute, the skin is often of a pungent heat about the breast and abdomen: while the forehead and face, exposed to the atmosphere, are sometimes damp, and even cold, the partial diminution of the temperature on these parts being occasioned by the evaporation of the perspirable matter. It may not be unimportant to remember this partial coldness, as I have known it mistaken for an indication of gangrene, when the inflammation had not actually reached its aeme. During the advancement of the abdominal affection, the pulse generally grows smaller and quicker, the nausea on vomiting more urgent, the belly rounder and more swollen; the thirst, sense of internal heat, flatulency, and restlessness being likewise all aggravated. Upon the approach of suppuration, of effusion or of gangrene, their are rigors of slight chilly fits, with

* In some very violent instances of inflammation of the stomach, attended with great pain, I have known the pulse not exceed eighty in the minute: but it invariably became much quicker on copious venesection, and continued so for a considerable time afterwards, even during convalescence.

so much abatement of pain, that an unexperienced observer might be induced to give a favourable prognosis; but an universal collapse quickly supervenes, attended by cold, copious, clammy perspirations; quick, short, agitated breathing; a hurried, undulating pulse; frequent, dark, loose stools; and often incessant vomiting. Yet inflammation of some of the abdominal viscera, especially of the stomach or bowels, frequently terminates fatally before it has advanced into actual gangrene, the patient finally sinking under the accumulated force of exhaustion and of irritation.

The symptoms of gastritis and enteritis have been described together, because my own observations have not furnished me with the means of unequivocally discriminating these disorders. But it may be generally affirmed, that in the beginning of gastritis vomiting immediately occurs on the blandest liquid being received into the stomach; whereas in the beginning of enteritis, it is well known that vomiting mostly does not occur until the fluid has remained some time on the stomach. In the advanced stages, however, of both these affections, the stomach is usually alike irritable. Though gastritis does not so often take place as enteritis, I cannot think it so rare an occurrence as some have confidently asserted. Morbid dissections have fully satisfied me, that the seat of the pain is sometimes in the bowels, when the inflammation is confined to the stomach, and *vice versa*. This fact surely proves the futility of trusting to the common nosological definitions.

If the covering or parenchyma of the liver be attacked with inflammation in typhus, giddiness, load about the breast, and, sickness, are often among the primary symptoms; and the patient, complaining of pain and soreness, with weight about the right hypocondrium, can neither bear pressure in that place, nor lie upon the left side, without an increase of pain. When the convex surface of the liver is the seat of the inflammation, it is sometimes not very easy to distinguish the hepatic affection from pleuritis: but in the former, uneasiness is excited by pressing the hand under and above the false ribs, and there is generally some pain at the top of the shoulder, circum-

stances not commonly observable in inflammation of the pleura, and further, the cough and dyspnoea are not so distressing as in the latter, while the abdominal secretions, especially those of the liver, are much more vitiated. The cough is for the most part dry, but sometimes humid, and frequently excites a pungent pain in the part affected, with a tendency to nausea, retching, or vomiting. The spirits and strength are much depressed; the mind is apprehensive, confused, or slightly delirious; the pulse quick and tensive, or low, changeable, and oppressed; the breathing anxious and variable; the tongue covered with a dirty white, yellowish, or brownish fur; the urine scanty and deep coloured; the bowels are generally irregular; and the feces dark, slimy, varied, and mixed with morbid bile. The heat of the skin, though sometimes only a little, is at other times above the standard of health; yet, according to my observations, it is not very often jaundiced in the genuine typhus. In the few instances of this description, which have appeared in my practice, as the yellowness was diffused over the cuticle, the pulse grew slower, and the temperature declined; but these were utterly fallacious indications, whenever vomiting, with a burning heat about the praecordia, and sinking of the strength supervened. In two unfortunate cases, from the commencement of which there were strong symptoms of hepatitis, and the skin towards the conclusion became tinged with bile, on dissection no marks of inflammation were found in the liver. It is perhaps not improbable, that this viscous and other important parts occasionally lose their vitality from inflammation, and yet on examination exhibit no signs of their previous excitement, all trace of that having passed away before death, by an excess of morbid secretion. A faint yellow or lemon tint of the skin sometimes accompanies an excessive relaxation of the system in the last stage of typhus; and this is generally a mortal symptom, whereas from mere jaundice no additional danger is to be apprehended, if the other indications be good. When this lemon tint occurs, the urine is commonly pale and thin, and the evacuations do not show any decided affection of the liver; but in the true jaundiced skin, the urine is usually

as deep and dark coloured as porter, while the stools are almost always somewhat like ordinary pipe-clay.

In the course of the abdominal inflammations combined with typhus, the sensorium is often very much disturbed, which is rarely the case in simple inflammations of the belly. Delirium, as before remarked, is one of the most ordinary symptoms of typhus under all its modifications; but, singly considered, it is by no means conclusive as to the real state of the brain or its appendages. An opinion, therefore, ought never to be formed from it alone, but, like the pulse, it should always be taken in conjunction with all the material circumstances of the case.

When other parts, than those above specified, are inflamed in typhus, a reference to the place of the pain, to the concomitant symptoms, and to the functions most decidedly disordered, may lead to the seat of the inflammation. Yet, as formerly hinted, however circumscribed the inflammatory action may be in the first instance, it often so speedily implicates the neighbouring parts, that it becomes no easy matter to decide precisely where it has commenced, or where it may terminate. Instead therefore, of being able positively to point out its site and extent, the candid practitioner can often only express himself assured of its existence; in this respect resembling the mechanician, who knows when a complicated piece of machinery is going improperly from the nature of its motion; though he cannot always specify, by a mere external inspection, the part which is more especially deranged.

The sub-acute form of inflammation not unfrequently exists in the abdominal viscera, and is attended with much less striking symptoms than the acute form, as the two following cases will testify. Some time ago, an aged person laboured under typhus, whose bowels had been greatly neglected throughout the disease, but as he had never made any complaint of fixed permanent pain, the existence of abdominal inflammation had not been suspected. At the expiration of the first week of the fever, after a strong shivering fit, succeeded by a cold clamminess of the skin, and almost continual vomiting of a darkish

fluid, he expired suddenly in convulsions; and on examining the body, unequivocal proofs of inflammation and gangrene were found in the small and large intestines. Another patient, at an advanced period of life, had an attack of typhus, and with the ordinary symptoms, solids and liquids were rejected almost immediately after they were taken; there was also a constant sense of burning heat and load at the stomach, accompanied with foulness of the tongue; small, oppressed pulse; tenderness of the abdomen on forcible pressure; and an extraordinary prostration of strength. The saline effervescing draughts were tried without the least relief; but under the impression that a hidden inflammation was existing somewhere in the abdomen, about nine ounces of blood were abstracted, the crassamentum of which was very cupped and buffy. Still, however, the burning heat and vomiting continued, and they were not removed until eight additional ounces of blood were drawn from the arm, and the patient had been frequently purged, and even blistered over the surface of the epigastric region.

In several instances of the inflammatory typhus, I have known patients so little incommoded for some time by the pain of the abdomen, as hardly to complain of it when they lay perfectly still in a particular posture; and it only became uncomfortable to them when pressure was applied, or when they were desired to move, cough, or take a full respiration. Yet, in general, some feeling of pain, with chillness, and an increased velocity of the pulse, indicate the approach even of the sub-acute form of inflammation in the belly. At times too, the pain is distinctly felt, and referred to particular regions; and when it suffers remission, which is not unfrequently the case, tenderness of the integuments, and internal uneasiness may still be detected by pressure. In the liver, spleen and kidneys, the inflammatory action may remain latent the longest, and only fully develope itself after a continuance of several days. But the existence of the sub-acute inflammation in any part of the belly may be inferred in typhus, when, after the subsidence of the stage of excitement, the stomach remains un-

commonly irritable ; when there are constant feelings of weight or uneasiness about the *scrobiculus cordis* ; quickened and anxious respiration ; small and rapid pulse ; indistinct chills and heats ; dry or foul tongue, with great thirst ; watchfulness and jactitation ; frequent eructations ; sense of internal heat ; soreness, or pain on pressure in some particular part ; and an unusual quantity of dark, thick, fluid matter in the stools, on the operation of a purgative. The progress, likewise, of such affections may be traced by a variety of symptoms, even when pain is not very conspicuous. As the inflammation advances, the nausea or vomiting grows more urgent ; the pulse smaller ; the respiration shorter and more easy ; the thirst more intense ; the belly rounder and fuller ; the eructations more frequent ; the face paler ; the restlessness greater ; and the condition of the temperature and skin more variable. Hippocrates attended most minutely to the respiration in diseases, so that the state of this function was to him what the state of the pulse is to us, a criterion or a guide as to the nature and diagnosis of diseases. Now in all abdominal inflammations, the breathing is much disturbed, and this is a circumstance which ought never to be forgotten.

There is often a striking change in the countenance of persons affected with visceral inflammations of an obscure nature, by which I have been partly led to the eventful discovery of the latent mischief, even when the patients themselves were lulled into a confident hope, that all cause of apprehension was past. This peculiarity in the countenance is varied in different stages of the same case : it may be an expression of suspicion, alarm and anxiety, dejection and peevishness, or confidence and apathy, often accompanied at last with a hollowness and livor about the eyes. But occasionally the countenance undergoes little change for some time, and the pain of the belly, which at first is often so indistinct as to require cross questioning to ascertain it, gradually becomes more manifest, whilst the abdomen grows more distended, and the pulse more frequent. In such examples it is not until the symptoms have

reached this crisis, that any very material change of countenance can be remarked, which, however, when it once takes place, hardly ever quits the patient but with the disease. Yet after all, one of the best methods of finding out obscure abdominal inflammations is forcible pressure over the bowels, which indeed ought never to be neglected as a test. When the hand is pressed on any inflamed part, pain is often excited, which would otherwise scarcely be felt at all. We might adduce several illustrations of this, in certain species of external inflammations, but perhaps one may be deemed sufficient. In the inflammations to which the feet and hands are liable, sometimes little or no pain is felt in the part affected, while the limb is laid at rest in a certain position, but no sooner is it pressed upon and moved, than the pain becomes urgent. Something similar to this may often be observed in the sub-acute form of the abdominal inflammation, and therefore both pressure and motion are excellent expedients in the diagnosis.

It has been previously mentioned, when the spinal cord is inflamed, or when the cutaneous nerves are particularly excited, that there is a peculiar tenderness or soreness of the surface; and as it is sometimes much greater in one part than another, it is of consequence to bear its true character in mind, lest it should be mistaken for a sign of abdominal inflammation. In this peculiar affection of the integuments, when abdominal inflammation is absent, if the hand be suddenly and lightly pressed upon the belly, the patient will shrink and the countenance become auxious, as may be observed from pressure while the viscera within are inflamed; but, contrary to what happens in abdominal inflammation, if the hand be cautiously, gradually, and at last forcibly pressed upon the belly, the tenderness or soreness of that part is generally lessened or removed for the time. Besides, other places of the body will be tender in this cutaneous affection, so that if sudden pressure be made upon the chest, arms, thighs, or legs, some of them will be equally sore; and on cross-questioning, too, this soreness, wherever seated, will be distinctly referred to the flesh, and on

the whole have a less permanent character than that attendant on abdominal inflammation, being now most acute in one, and then in another part of the surface. Yet as abdominal inflammation may be co-existent with this peculiar affection in the skin, we should always be sure to ascertain whether the pathognomonic signs of the former be absent or present; and where the diagnosis is doubtful, it will be safest to proceed as if abdominal inflammation existed, provided the practitioner be consulted at an early period of the fever.

In the preceding observations, the cerebral, thoracic, and abdominal inflammations have been considered in their proper order; but it must not, therefore, be inferred, that inflammation is always entirely limited to the head, to the chest, or to the belly. The truth is, that it may exist separately in each or combinedly in all of those regions, though one part is generally most decidedly affected. When one organ bears the burthen of the inflammation, the patient stands an infinitely better chance of recovery than when many organs are inflamed at the same time; indeed I have seen very few patients recover in typhus where the viscera of the head, chest, and belly have been simultaneously affected. It will appear from what has been said, that the mucous, the serous membranes, and the parenchymatous substance of various parts are the common and respective seats of inflammation in typhous fever; but the muscular fibres of the bowels and of the heart are sometimes liable to be attacked, and this is especially the case when rheumatism supervenes, which in typhus always makes a most formidable complication of disease. The character, then, of the inflammatory form of fever must be exceedingly diversified, according to the structure and functions of the part which may happen to be inflamed; but still the genuine signs of inflammation mark it as one affection, however it may be modified from the peculiarities of its local situation.

SECTION III.

THE CONGESTIVE TYPHUS.

Some descriptions of what I mean to denominate the congestive forms of fever, may be found in the ancient records of physic, especially in those of Hippocrates, for in the *lipyria* and *epialia*, there seems to have been internal accumulations of venous blood, without the increased excitement which designates the *causus* or burning fever; and in speaking of the rise of a new fever, Sydenham hints at one in which the surface was cool, and nature so much oppressed and overcome by the attack as not to be able to raise regular symptoms because, he adds, the vessels were so full as to obstruct the motion of the blood.* Dr. John Clarke and some others, too, have given some histories of fevers which appear to have been congestive, yet so far as I know Dr. Robert Jackson has indisputably the merit of having surpassed his predecessors in the distinctness and fidelity, with which he has described the symptoms. But whilst thus paying a just tribute of praise to this indefatigable physician, it is my design to adduce the results of my own observation and experience, since I have only been able to find obscure hints in the writings of others respecting the pathology of this variety of fever; and if I should be so fortunate as to succeed in removing any part of the obscurity, which has hitherto caused doubt and indecision as to the true nature and best treatment of congestive disease, the road to a more extended inquiry hereafter will be made more safe and accessible.

One of the most remarkable cases of the congestive typhus which I ever witnessed, occurred many years ago in a slender

* The entire works of Dr. Thomas Sydenham, newly made into English from the originals. Third edition, p. 570. London, M.D.C.C.LIII.

young man, who had travelled several miles to see a relative sick of that fever, with whom he remained, and upon whom he attended several days. On returning home, he was suddenly attacked with vertigo, chillness, sickness, and extreme weakness of the lower extremities; and when he reached his own house he appeared most strangely confused in his head and intellect, staggering and talking like one intoxicated. He was immediately put to bed, and did not complain much afterwards, but gradually fell into a profound coma, in which he lay without motion at my first visit. The face was then pale and some what livid; the breathing deep and impeded; the pulse small, frequent and irregular; the tongue white, and covered with a slimy saliva; the skin dingy and partially damp, the heat of which felt nearly natural over the breast and belly, but the extremities were rather cold. The head was shaved and blistered without loss of time, mustard sinapisms were applied to the feet, and large cathartic injections repeatedly administered. In about twelve hours, when the bowels had been often and copiously moved, the patient gave some indications of returning sensibility; and in a few hours more, looked up, and even recognized some intimate friends, who were present, but spoke in a feeble and faltering accent. For several hours there was an appearance of improvement in some particulars; his pulse and breathing became freer, his voice more natural, and his skin of a warmer glow; but in contravention to these favourable symptoms, his hands were tremulous, his tongue fouler, and there were a few dark petechiæ scattered over the trunk and arms. Moderate portions of wine were now recommended at short intervals, with a view to support his strength; but the debility increased under this plan, and he again sunk into a deep stupor, in which he expired, slightly convulsed, about forty hours from the first attack.

Some months after the occurrence of the above, another and similar example came under my inspection. The subject of it was an aged, but robust man, who, having been exposed to contagion, at first became pale and languid, and who finally

was afflicted with vertigo and dimness of sight; deep stunning pain of the head; confusion of mind; sense of stricture in the chest; and oppression of the præcordia. The countenance had a vacant and intoxicated expression; the tongue was white in the middle, smooth and moist. No material augmentation of the temperature existed; the skin was dry on the trunk, and damp on the forehead and extremities; the pulse underwent little change, except that it was somewhat more frequent, and less resisting than usual. The patient seemed restless for some hours, but like one yielding to excessive fatigue, or to inebriety, he sunk into an appearance of imperfect sleep, attended with slight startings of the tendons and heavy respiration. In this state, blisters were applied to the head and chest, sinapisms to the feet, and in conjunction with enemata, purgatives were administered; as upon trial it was found that liquids could be swallowed, although with difficulty. After the bowels had been evacuated of much dark feces and bile, the stupor, as in the former instance, gradually disappeared, and some partial efforts of excitement succeeded. Still, however, there existed obvious disorder of the sensorium, evinced by a stupid fatuous stare; slow, drawling mode of speaking, and much intellectual confusion. By degrees some petechiæ came out on different parts of the body, and the tongue grew foul and brown, the breathing laborious, the skin rather greasy as well as cool, and the pulse considerably weaker and more rapid. Wine, cordials, and laxative medicines were now the principal means employed, but they proved completely inefficient. On the third morning of the disease, immediately after a dark liquid stool, a general shivering supervened, like the cold fit of an ague, and life was soon terminated, by successive attacks of strong convulsions. Permission was obtained to inspect the body, in this interesting case. The derangements in the head were nearly analogous to those which are often exhibited after the fatal issue of apoplexy. On laying back the dura mater, the vessels could be seen loaded with blood along the convolutions of the brain; and on deeper examination, the whole cer-

bral substance was found preternaturally turgid, with some bloody serum in the lateral ventricles. The liver and spleen were likewise greatly distended with grumous blood, and the lungs had a gangrenous appearance in some places.

Another case of congestive typhus, which I attended some years ago, did not accord in many points with either of those above reported. It took place in an adult, on the ninth day from the period of infection, on the morning of which he was so well as to join in active amusements with some acquaintances; but he felt oppressed and sick in the course of the day, and went to bed in the evening, with the hope of relieving himself from the indisposition which had come so unexpectedly over him. About three hours having been passed in a sort of disturbed slumber, he awoke with a rending pain in the temples: peculiar heaviness, noise, and swimming in the head; some indistinctness of mind; involuntary sighing; and sensations of weight and distress at the pit of the stomach. The countenance soon acquired a look of extreme agitation; the skin was dry on the trunk, and damp on the extremities; the centre of the tongue white, but moist; and evidences of irregular excitement gradually developed themselves; the pulse being small and hurried, the heat sharp and concentrated about the praecordia, but lower than natural on the wrists, ankles, forehead, and lobes of the ears. Pretty large doses of strong cathartic medicines were exhibited through the night but without effect. Early on the following morning delirium occurred, attended by spasmodic twitchings of the face, small rapid pulse, and a bloated countenance. The excitement still remained unequal, the surface being hot in some parts, while it was cold in others; and the raving continued without intermission until the ensuing night, when he grew much quieter. After having lain some time in an apparent stupor, occasionally broken by sudden startings and shrieks, he was seized with strong convulsions, and died soon afterwards. Although the general aspect of this case did not correspond with that of the two forementioned, yet on dissection the morbid appearances

were not very dissimilar; for the brain, liver, and spleen were the parts chiefly engorged with blood, the two latter organs being ruptured by forcible pressure of the hand.

A gentleman of active habits, who had imprudently exposed himself to the contagion of typhus, felt uncomfortable some days afterwards; and though he could not command his attention as usual, he was able to take moderate exercise. One morning while walking in the streets, he was seized with vertigo, and dimness of sight, and reeled in such a manner, as to induce some persons, who happened to be near him, to suppose that he was drunk. After having been assisted home, he seemed to be distinctly threatened with apoplexy, and on that account a vein was opened at the arm. The blood merely trickled from the orifice for several minutes, at length, however, it gushed in a full stream, and about sixteen or eighteen ounces were abstracted, with evident relief of some of the more urgent symptoms. The patient was immersed to the middle in a warm bath, and bland, tepid liquids were afterwards given, followed up by the exhibition of brisk cathartics and stimulating injections, which operated powerfully in a few hours. The disorder soon clearly revealed itself, having all the marks of a genuine typhus; but in this instance a perseverance in purgatives, the seinicupium, and warm diluents, soon effected a cure.

The cases above cited may be viewed, so far as my observation goes, as tolerably fair examples of the more violent forms of the congestive typhus, in which, different from what is observed in the simple and inflammotory typhus, the stage of excitement, without the interference of art, never emerges at all, or only does so very imperfectly; the energies of the system being either nearly extinguished by the venous congestions, or so much oppressed, as to be unable to create an universal excitement. Sometimes however patients do not rapidly sink under the first shock of the attack; but that being passed over they linger many days in a state of stupor or mental indifference, and die at last with a foul dark tongue, shrivelled cool skin, and deep sunken countenance. The open forms of fever

in which heat and arterial re-action are equally developed, will be found the least dangerous ; and those of an obscure nature, in which neither heat nor arterial re-action are equally developed, the most perilous and unmanageable. In congestive cases, the local accumulations of blood in the veins obstruct from the beginning the common series of febrile phenomena, and there is in consequence either a total want of morbid heat or a concentration of it in some particular parts of the body, whilst others are considerably beneath the natural temperature.

The attacks of the most dangerous forms of the congestive typhus are generally sudden, and marked by many remarkable symptoms :—an overpowering lassitude ; feebleness of the lower limbs ; deep pain, giddiness, or sense of weight in the encephalon ; a dingy pallidness of the face ; anxious breathing ; damp relaxed, or dry withered skin ; and those peculiar conditions of the temperature which have been noticed above. The pulse is low, struggling, and variable ; the stomach irritable ; frequently there is an inability from the first to hold up the head ; and the mind is more often affected with dulness, apprehension, or confusion, than with delirium. The whole appearance of the sick impresses the attentive practitioner with the idea, that the system in general, and the brain in particular, are oppressed by some extraordinary load. Both the manner and look of the patients undergo early and great alterations : sometimes they slowly drawl out their words, or utter them in a hasty and yet imperfect mode like people who slightly stammer when embarrassed ; they not unfrequently seem as if stunned by a blow, half-drunk or lost in a reverie ; at times have the bewildered aspect of persons suffering under the first shock of an overwhelming misfortune. The eye is occasionally glary and vacant, without redness ; but at other times it is heavy, watery, and streaked with blood, as if from intoxication, or want of sleep. At the commencement the pulse is often less altered as to frequency than might reasonably be expected, yet in general it becomes very rapid towards

the close; the tongue is usually little altered in the first stage, but in the last frequently rough, foul and brown; the bowels are mostly very torpid in the beginning, and the stools procured dark and scanty; whereas, in the advanced stage, the bowels are generally loose, and the stools copious and involuntary. Eruptiones are not uncommon at all times, and the epigastric region is often much inflated. On account of the general torpor, the secretions are diminished or suppressed; and, as justly remarked by Dr. Robert Jackson, the skin is often in that peculiar state, that if blisters be applied, they either do not act at all, or so defectively, as to leave an appearance as if the part had been slightly seared by a heated iron. Petechiæ in general appear earlier in these than in any other varieties of typhus; and in the last stage there are sometimes gangrenous spots on the extremities, oozings of blood from the mouth and nostrils, and hemorrhage from the bowels.

There are conditions of the sensorium, voluntary powers, and præcordia, no less than of the respiration, pulse, and skin, which mark the progress or decline of such affections with the greatest certainty. If the stupor or delirium continue to increase with an augmentation of the oppression, if the respiration become more anxious, the pulse weaker and quicker, the skin colder, as well as more flaccid, and especially if the stools or urine be passed insensibly, the case will almost invariably terminate mortally. But, on the other hand, if the stupor or delirium should disappear, while the oppression obviously abates, and the respiration becomes easy, the pulse full and regular, with an universally warm skin, a favourable prognosis may generally be given. The abatement, however, of the delirium or stupor, unaccompanied with the other favourable signs enumerated, is not at all to be depended on; for patients sometimes become rational and collected a few hours before death, and that even when the brain is in a state of irretrievable disease, as the two cases and dissections before given may serve to illustrate. It must always be recollected, that in examples of congestive fever, there is a singular disposition to

relapse; so that a patient may grow very suddenly and seriously worse, when all the previous symptoms might have led us to form a sanguine opinion.

There are comparatively milder forms of the congestive typhus, in some of which the patient walks about for a few days after the infection has begun to operate, and complains little, except of uneasiness of the head, loss of appetite, and languor, appearing rather paler than when in health. If strictly attended to, however, by a medical observer, a change may usually be remarked in his whole demeanour; he cannot so steadily command his attention as before, is not only restless during the day, but watchful at nights, and soon betrays an absence of mind or loss of memory. At length he becomes garrulous like a half drunken person, or talks inconsistently with his former views and character; after the lapse of another day or two, the mental confusion is most obvious to every one, he begins to be unsteady in his gait, and has a heavy intoxicated cast of the countenance. If carefully examined at this period, his tongue will be found white, his pulse small, quick, and perhaps irregular; his breathing hurried; his bowels slow; his skin rather hot about the trunk, but coolish and damp on the extremities. If the disease be allowed to proceed, without decided interruption, the hands shortly become very tremulous, and the confusion of mind passes into delirium; yet there is still a want of regular excitement, demonstrated by the alternate flushing and paleness of the face, the feebleness of the pulse, the unequal state of the whole circulation, the coolness of the extremities, the partially concentrated heat of the trunk, and the laxity of the skin. Aural and visual deceptions succeed, and force the patient into violent exertions, and every attempt to overpower him by coercion tends to aggravate the delirium, and sink the strength. His tongue grows daily foul er, and his debility greater; he begins to pick the bed clothes, and at last petechiæ and subsultus tendinum appear. About this period, the general turbulence sometimes unexpectedly abates, and he may become so serene and rational, as to give

some hopes that a favourable crisis has really taken place ; but the calm is most frequently deceitful, being soon followed by an universal collapse, in which death occurs, mostly without much struggling.

There are yet other forms of congestive typhus, which, after a day or two of lassitude, are usually denoted by chilness, nausea, short, quick breathing with frequent sighing, unpleasant sensations at the stomach,—and also by white tongue, deprivation of taste, irregularity of the bowels, dark bilious excrements, pain and giddiness of the head, an alarmed or confused state of the mind, paleness of the face, dejection and languor of the countenance, inflation of the epigastric region, and great prostration of strength. An imperfect excitement is gradually developed, which rises and falls three or four times in the course of twenty-four hours. During the slight exacerbations of the fever, the skin is hot and dry in some places, especially about the præcordia ; the face flushed ; the pulse rapid ; the breathing quickened almost to panting ; the eye glossy ; the countenance agitated ; and the mind solicitous. These short paroxysms of fever passing away, the skin grows damp and relaxed, the face pale, the pulse less frequent and more undulating, the breathing slower, the eye duller, and the countenance and mind more serene. After some partial efforts of this nature, the excitement is sometimes fully emerged, and the fever may put on a simple or an inflammatory character ; but it more often advances, with frequent heats and chills, as an irregular one of congestion, and, if left to itself, most frequently destroys the patient, within the first two weeks of the attack, by cerebral or hepatic derangement, or suddenly suppresses life, by an unexpected engorgement of the brain, or of some other vital organ. In such affections, there are occasionally distinct remissions, and likewise apparent translations of local oppression from one part to another. The remissions are commonly fallacious, and the translations are always to be dreaded, for, independently of the mischief which they may produce in the viscera affected, they denote a loss of equilibri-

um, and a general disorder in the circulating system, which are not easily corrected.

The foregoing are some of the principal modifications of the congestive typhus, which have come within the limits of my observation; and it would perhaps be superfluous to attempt a more detailed account of them.

It has been noticed, that a distended state of the venous system exists in the first stage of the simple typhus, yet so slight, as to give way to the occurrence of the stage of excitement, which comparatively equalizes the circulation. It has also been shown, that in the last stage of the same modification of fever there are sometimes certain degrees of venous engorgement about the viscera, resulting from the universally increased action of the arteries throughout the second stage, an action which forms no part of the congestive typhus. The congestive, therefore, differs from the simple typhus, first, because the viscera are far more engorged in the primary stage; and secondly, because, through the continuance of the engorgement, that stage is followed by a general collapse, without the intermediate one of regular and universal excitement, which not only partly characterizes the simple typhus, but which produces the occasional and partial congestions of its last stage.

If then the congestive so obviously differs from the simple, it may be inquired, in what does it differ from the inflammatory typhus? Universal augmentation of heat and excitement, attend the inflammatory, which are not the concomitants of the true congestive typhus, and which may be considered as the principal *external* distinctions between them. But, further, there is in the inflammatory, not only a general excitement of the arteries, but an increased accumulation of blood in the capillaries of the diseased part; whereas in the congestive, the force of the arterial system is not only diminished generally, but the whole venous circulation oppressed and particularly obstructed where the congestion exists. Agreeably to this view, we find that the blood in the inflammatory is almost invariably covered with a buffy coat; but such an appearance is never observed

in the strictly congestive, which seems to denote, that the size found on the crassamentum of venous blood, proceeds from the influence of a local or general change in the blood, originally occurring in the arteries. Moreover, the morbid appearances after death are different, the large veins in the viscera being greatly engorged with black grumous blood, in cases of the congestive; whereas, in those of the inflammatory, the capillary arteries of the membranes which invest the viscera are in general found principally affected, and the redness is diffused, and of a brighter colour. Still, however, it is only candid to confess, that this part of the subject is not altogether free from obscurity; for every experienced practitioner must know, that even in acute inflammations of the viscera, the action of the heart is sometimes so much oppressed, that the general excitement does not at all correspond to the danger and extent of the topical disorder.

The venous system is more immediately and chiefly concerned in the phenomena of the congestive typhus, and the arterial system in those of the simple and inflammatory typhus. Though the engorgements may exist in different organs in the congestive typhus, yet the large vessels about the right side of the heart, the veins of the brain and of the liver are the parts most frequently and seriously affected, and next to them, those of the spleen* and lungs. The most violent forms of the congestive typhus sometimes resemble apoplexy in their symptoms,

* It is well known that the spleen may be extensively diseased without reacting upon the system, except through its mere pressure on the neighbouring parts. This can perhaps hardly be said of any other internal organ of equal magnitude. Can this viscus be intended by nature as a receptacle for venous blood on those emergencies, which are liable greatly to disorder the circulation? And do its structure and situation seem fitter for such a purpose? The sanguiferous system abounds with precautions against venous congestion, and, should the spleen be considered one of them? Dr. Rush, of Philadelphia, formerly threw out some hints, in order to show that the spleen was an organ to preserve the system from great excitements of the heart and arteries, but is it not also adapted to guard against sudden congestions of the veins?

to which indeed they often have a near affinity in their pathology. The balance between the arterial and venous systems is more or less disturbed in every instance of congestive fever; for there is more blood accumulated in the veins, and of course less contained in the arteries, than in a natural state. This loss of balance is especially observable on the skin, less blood circulating in the vessels of that part than common, while the central organs of the body are greatly engorged. It is perhaps to the preternatural fulness of the larger veins, that the lowness and oppression of the pulse ought to be attributed; at least it generally rises after depletion from the veins, which seems to restore the circulation to an equal state again. From observation and dissection, I am certain that venous congestion exists in many acute and chronic diseases, combined with a deficiency of arterial action; and that in such cases, contrary to the common opinion, a low, feeble pulse generally indicates, in the first instance, the propriety rather of depletion than of stimulation. According to the calculations of Haller, the veins in health contain three-fourths of the whole mass of blood, the remainder flowing in the arteries. The same admirable physiologist has declared, that the blood may actually coagulate, from the slowness of its motion, in the veins of a living person; and he has also pointed out the precautions which nature has used to prevent such an occurrence, by the free anastomoses of vessels, which guard against obstructions, and admit of opposite currents of blood. Probably the anatomist may find, in the peculiar structure of the venous apparatus of the head and of the liver, the cause why these organs should more often suffer in congestive fever than the rest. If we permit ourselves impartially to consider the vast importance of the whole venous system, we shall perhaps be led to conclude, that its morbid states have by no means received sufficient attention; particularly in those modifications of febrile disease, where there is from the beginning an obvious want of tone in the heart and arteries, which has too frequently been mistaken for general debility, but which is often a state of oppression,

proceeding from fulness of the venous system. The various modifications of congestive fever may be divided into the regular and the irregular; in the former there is no arterial excitement whatever, in the latter there are very partial arterial excitements, united with a general depression of the system. This discrepancy of character arises from the different degrees of the venous congestion. In the regular congestive fever, the topical accumulations of blood are so great as to overpower the natural energy of the heart; whereas, in the irregular congestive fever, they are not to such an extent, and consequently admit of some re-action, which would appear like an effort of nature to restore the natural balance of the circulation. In the first stage of the simple and inflammatory typhus, there is generally more or less rigor, which ushers in the stage of excitement; but I have hardly ever met with an instance of the true congestive fever, in which the first stage was accompanied with universal shivering. This might lead one to suppose, that the cold shivering fit was intimately connected with the production of the stage of excitement: more extensive observation, however, than I have yet been able to make, would be requisite to confirm this as a general fact.

In the simply excitice, and in the inflammatory forms of fever, the action of the heart and arteries is increased, but in the congestive forms it is diminished; and this difference in the action of the heart, together with the high temperature of the two former, and the low temperature of the latter, constitutes the most distinct mark between diseases of excitement and congestion. The first shock, in the congestive forms of fever, seems to be communicated to the nervous system, and the heat of the surface being reduced, the blood retires into the deeper seated veins, and from thence is returned in preternatural abundance to the right side of the heart; but as the power of the heart has been previously oppressed from the primary shock to the nervous system, it cannot completely rid itself of this superfluity of blood, and hence its action continues to be disturbed, and hence the return of venous blood from the brain,

liver, and other organs must necessarily be so retarded as almost to stagnate in some places, when the shock has been severe. In examining the bodies of some patients who had died in the most concentrated attacks of congestive fever, I have found the right side of the heart loaded with dark blood; and in reflecting upon the phenomena of all, am now inclined to believe, that their pathology is intimately concerned with the functions of the right ventricle. For when the action of the right ventricle is diminished, and when it is overloaded by too great an accumulation of venous blood, it must by consequence occasion a remora of venous blood in distant organs; and a sufficient portion of red blood not being thereby returned to the left ventricle, its action also must be defective, and its blood perhaps not sufficiently oxygenized for the complete purposes of vitality. But if it be highly probable, that the right ventricle is closely concerned in the pathology of the congestive forms of fever, it is clear that the left ventricle is as much so in the simply excitice and in the inflammatory forms: for in both of these the force or the frequency of the left ventricle is greatly increased, and therefore greater quantities of blood than in health must be driven through the whole arterial system; so that if there be any previous obstruction or disturbance in any part of the capillary arterics, this obstruction or disturbance will now be augmented and become positive disease. It is, in fact, the increased action of the left ventricle, together with previously local obstructions or disturbances, which give rise to most of the topical inflammations which occur in all fevers; and the reason why no inflammation attends the simple forms of fever is, because the increased action of the left ventricle occurs in constitutions, the organs of which had been previously sound. If I had to fix upon any part of the body as more immediately involved in the production and continuance of fever, it should be the heart; and yet how little attention writers have paid to this organ pathologically, though almost all the remedies which we employ exert a favourable influence through their direct or indirect operation on the heart.

One striking difference between the congestive, and the simple and inflammatory forms of fever is, that the animal heat is diminished in the former, and increased in the two latter; and as the heart's action is diminished in the one, and increased in the other, the difference in the degrees of temperature would appear to be connected with the difference in the action of the heart. But is there also a deficiency of electric matter in the congestive and an excess of it in the simple and inflammatory form, upon which the change in the heart's action and in the animal heat may partly depend? And, if future observation should answer this query in the affirmative, might not the electric or galvanic matter be advantageously communicated to, or abstracted from, the body according to the character of the case? In some diseases of general torpor attended with venous congestion and a deficiency of animal heat, I have known patients bear an accumulated force of the galvanic fluid with pleasure and advantage; whereas in diseases of excitement attended with an elevation of temperature, the slightest charge was painful and prejudicial, so that the galvanic fluid became a test whether the system was in a preternaturally torpid or excited state. These facts, therefore, may render the above questions less unimportant than might appear at first sight; and would not the peculiar, tingling heat on the skin, and the somewhat sulphurous taste in the mouth often seem to indicate, in the simple and inflammatory typhus, that the electric or galvanic fluid was passing out of the system? It is a remarkable fact, that the animal heat cannot be long raised above nor sunk below the common standard without destroying that harmony of the system which constitutes health; and this heat varies in some degree even in health, and it differs in different diseases, and in different stages of the same variety of disease, but after death the body becomes as cold as the objects with which it is surrounded. That within certain ranges of temperature, there is a greater degree of heat in living animals than in surrounding objects devoid of life, is evident to all; and may not this be accounted for by the vital functions taking up, through the

medium of diet and air, as much as may be necessary for the support of the economy ? There is a great difference between the effects which result from the vital operations, and the best constructed piece of mechanism ; yet perhaps the subject of animal heat may be somewhat illustrated by the facts observable in the working of an electrical machine. The whole appendages and body of this machine only contain that degree of electricity according to the respective capacities of each ; but when the machine is put in motion the fluid is much augmented, and part of it may be thrown off as it is formed, and if it be prevented from passing into other bodies, it may be still more increased. Is not this somewhat analogous to the animal body in a state of health, when by its vital movements it takes up and throws off those quantities of heat necessary for the maintenance and exercise of its functions ? Nay, is not this somewhat analogous to the animal body in fever, when the heat, by diminished secretions, is prevented from escaping, and consequently accumulates ? We frequently speak of heat being formed in the system ; but if in this case we mean any more than when we speak of the formation of the different fluids of secretion we surely deceive ourselves. What is it, then, that we do understand by the formation of such fluids ? We understand nothing more than that they are produced from the blood by some unknown operation, and this operation is constantly supplied by diet and air, as the electrical machine is supplied from surrounding objects. When we speak, therefore, of the formation of animal heat we can only mean, that it is produced by the modifications which the caloric undergoes when received into the system, and when co-operating with those materials of air and food with which it may have affinities in passing through the body.

Since the first edition of this work appeared, typhus has prevailed in many parts of the united kingdom, and many valuable facts have been published on the subject, strongly confirmatory of the doctrines which I had previously laid down ; and indeed one able author, who has seen much of the disease, has

done me the honour to adopt the whole of my arrangement, and another has taken the two first divisions as the basis of his pathological principles. Still however it seems to me that there is too great a tendency to consider, like Erasistratus of old, the febrile affection as purely one of inflammation under all its varieties; and some, whose talents and experience claim the highest respect, would limit that inflammation to a single organ. But though I admit that the brain is exceedingly liable to be affected in typhus, yet repeated observations and dissections have as forcibly convinced me, that other parts are apt to be implicated in the inflammatory state; and I have seen thoracic but particularly abdominal inflammation in typhus proceed to a fatal termination, without any inflammatory affection of the brain or even of the spinal cord. Dr. Beddoes, whose anatomical researches have been so extensive in fever, states, as the result of those researches, that the abdominal viscera are more frequently affected than the rest; and this I believe is peculiarly the case in those fevers which proceed from marsh effluvium, and certainly the same parts often suffer in contagious fevers. But in fixing upon no particular tissue as the seat of fever, in not limiting its character merely to inflammation, but in tracing its effects through all the body under a simple, and inflammatory, and a conjunctive variety, an approach it is hoped has been made towards a more correct generalization of the leading phenomena of typhus and other febrile diseases, as shall afterwards be more fully elucidated. As typhus, then, has three remarkable modifications, it may not be superfluous, before concluding its pathology, to inquire whether any of these modifications has a natural tendency to terminate on particular days. The doctrine of critical days, notwithstanding it is said to be founded entirely on observation, was probably in some degree connected, as Celsus has hinted, with the Pythagorean philosophy which, attaching so much consequence to numbers, had many followers in the ancient world; and though Celsus was one of those cautious, temporizing men, who seldom venture to give a decided opinion on disputed points, yet

in regard to the doctrine of critical days, he has deviated from his usually middle course, and opposed it with considerable decision and ingenuity, in despite of his veneration for Hippocrates. Agreeably to my observation, so far from a crises of this kind occurring on particular days in ordinary fevers collectively taken, [h] they do not generally occur on particular days in the same fevers; but, not to mention that they are often wholly absent, such crises sometimes take place at one period and sometimes at another, without any stated regularity. But if by critical days were to be understood, that typhus has a sort of determinate duration, then I would subscribe to the doctrine, with certain limitations; for the simple typhus, when it preserves its unmixed character, for the most part naturally goes on for a certain number of days, and then declines, but the inflammatory and congestive have no such regular and determinate duration. Nor can we correctly fix the duration of the simple typhus, like that of the small pox and measles, to almost a precise period of time; since it has a much greater range, sometimes terminating within ten, generally within fourteen or twenty-one days, and occasionally extending to the fourth, fifth, or sixth week. Yet I am fully persuaded, that the simple typhus may often be cut short (i) in the very commencement, though when it has existed unchecked for a few days, I am equally confident, that its course can only be moderated; and it is of great practical importance to bear both these truths in recollection, that we may not be too inert in the beginning, nor too active in the progress of this fever. With respect to the inflammatory typhus, when the attendant inflammation is acute and has occurred early, both the typhus and its attendant may be arrested at the same time: but when

[h] It is hardly necessary to remark that in this country very little if any regard is paid to critical days.

(i) Those who place typhus among the contagious diseases, seem forced to deny the possibility of arresting the disease in the commencement. True, it is difficult to prove that it ever was cut short, but, after all, not very difficult to *believe*.

the acute inflammation exists in a typhous case of some days' duration, the fever will hold a determinate course, though the inflammation be subdued; and what is here asserted of the acute inflammation also equally obtains in regard to the subacute, when complicated with typhus. As to the congestive typhus, every sign of disease will sometimes be wholly removed with the symptoms of venous engorgement; but at other times, the fever will run a determinate course, even when the venous congestion has been removed.

SECTION IV.

TREATMENT OF THE SIMPLE TYPHUS.

It would be fortunate if professional advice were sought for on the first attack of fevers, because for the most part they might then be either completely arrested, or reduced so much in their force, as to be finally overcome; but unhappily the patient often flatters himself, that the primary feelings of indisposition will gradually abate of themselves, and under this impression allows the disease to proceed, until a dangerous combination of symptoms renders the success of the best measures uncertain. The symptoms of the simplest typhus vary according to the time that it has continued; and this fact shows the necessity of carefully noting the several stages which have been described, for the remedies proper at one period will be found extremely pernicious at another. Yet self-evident as these truths are, they have not been sufficiently regarded by practical authorities, whose contrarieties might probably be reconciled, if we knew the circumstances under which their various remedies were employed.

As soon as any patient falls sick of typhus, and the remark may be extended to almost every fever, absolute rest should be immediately enjoined; since, how mild soever the symptoms may be at the commencement, it is impossible to foresee to

what they may finally lead, if then neglected; and the hazard is always greatly increased by attempts to cast them off by business or exercise. It is in the first stage of the simple typhus, that a period may always be observed, in which, by the retrocession of blood from the surfaces, and by certain degrees of internal venous congestion, the general balance of the circulation is disturbed, and in which much good may be done, by very simple means. Above all things, the practitioner must not be deterred by the appearances of debility from the use of some evacuants, for they are not only safe, but highly salutary at this time, when the system is merely oppressed by a kind of preternatural burden, and not really in a state of exhaustion.

At the beginning of this stage, the stomach frequently rejects the greater part of whatever may be taken; and, on this account, there are very few medicines which can be advantageously prescribed. Antimonial emetics, however, have been very generally recommended, and, according to my observation, are serviceable when the fever is of the least complicated form, commonly producing an improvement in the condition of the skin, respiration, and pulse, in particular; and perhaps it is on the power which they possess of determining the blood to the surfaces, and of changing the morbid states of the circulation, that their efficacy is chiefly to be explained. In the beginning of almost all febrile complaints of a simple character, emetics will generally be found very beneficial; though much neglected now-a-days by many practitioners, probably on account of the universal introduction of purgatives. When the stomach has been sufficiently evacuated in the simple typhus, no time should be lost in freely moving the bowels; and it is better first to empty the lower intestines of their contents, by a large cathartie injection, which frequently lessens or allays the irritability of the stomach, and thus gives the aperients afterwards exhibited the fairest chance of being retained.

The system in general is more torpid than natural in the stage of oppression; and of this torpor the bowels largely participate, so that purgatives ought to be given in such doses as

to insure their full operation. Nor need any risk be apprehended from three, four, or even more copious motions during the day ; for, instead of weakening the patient, they will renovate his powers, lighten the system of the load which weighs it down, and contribute to restore the circulation to its healthy equilibrium.

Owing to the want of preternatural heat, and of arterial activity on the surface, in this stage, the warm bath is a safe and efficacious remedy, and, with the means before mentioned, has considerable effect in equalizing the circulation. 'T'epid barley water, or thin gruel, which should now form the diet as well as beverage, may be taken with advantage, as they often have a tendency to lessen the irritability of the stomach, and sometimes to induce a gentle and general perspiration, without finally causing any injurious excitement, local or universal. There may be cases in very old or debilitated habits, where, in conjunction with mild emetics, purgatives, the warm bath, and small portions of weak wine may be requisite before the second stage takes place ;—but in general, diffusible stimulants are quite inadmissible at this period.

The apartment of the patient should, if possible, be large and well ventilated, the heat of which ought not to be below fifty-six or sixty degrees of Fahrenheit's scale ; for it must be recollectcd, that as the excitement has not yet taken place the surface of the body cannot be long acted upon by a low temperature without prejudice.

The second stage, or that of excitement, is far more frequently witnessed than the first, at least by physicians, who are seldom consulted until the fever has fully developed itself, and even reached its acme ; when the dry, burning heat of the skin is amongst the most conspicuous symptoms, and when a treatment is required, in many respects different from that which has been recommended in the stage of oppression. But as the morbidly increased temperature now involves so many important considerations, the rules relative to its management shall be explained, before proceeding to the other parts of the

practice. Among the names of those who have contributed to illustrate the effects of cold and warm water, as a remedy for fever, that of the late Dr. James Currie stands deservedly pre-eminent, and will long be remembered with respect, by the philosopher, the philanthropist, and the physician. Agreeably to the experience of this estimable writer, the best time for reducing the preternatural heat in typhus, by the aspersion or affusion of cold water, is when the exacerbation is at its height, or immediately after it has begun to decline; and he therefore directs either the one or the other to be employed from six to nine in the evening, the period in which the febrile action is most intense. But he also expressly declares, that the cold water may be used at any time of the day, when there is no sense of chillness present, when the heat of the skin is steadily above what is natural, and when there is no general or profuse perspiration. These principles are equally simple and intelligible, and on repeated trials I have found them excellent guides, during the whole time of excitement; although, as shall be afterwards shown, they may be deceptive, and even dangerous, if followed in the stage of collapse. And so far as I have remarked, a *slight* sense of chillness ought not to preclude the application of cold water, provided the arterial excitement be universally developed, and the temperature every where steadily at a morbidly high point; care being taken, in such cases, that the water be not lower than 60° of Fahrenheit's thermometer, and that too large a quantity be not affused at one time.

During the first, second, and third days of the stage of excitement, more especially during the first, I have sometimes seen the simple typhus entirely extinguished by the affusions of cold water, and failing to effect so much, they have generally been highly refreshing to patients, and, with other measures afterwards to be noticed, have enabled me so to lessen the fever as to ensure a favourable issue. But from the fourth day of this stage, I have not often seen them useful; and from that time onward, until the period of collapse, it has been customary with me to employ the tepid affusions or bath, at the tem-

perature of 94° or 96° of Fahrenheit's scale. When the former are used, in general I order, four or five times in twenty-four hours, about two gallons of sea-water, or spring-water mixed with some common salt, to be poured over the patient while he is supported upon a stool placed in a low, wide tub, his feet being covered with warm water: this operation is repeated at intervals of about one or two minutes, twice or thrice each time, until the skin become comfortably cool, but not chilly or contracted. The surface then is carefully dried, the patient put to bed, thinly covered between clean sheets, and allowed to take moderate portions of some milk-warm, bland fluid, by way of promoting a gentle perspiration. Frequently when the tepid affusions have not succeeded in cooling the cuticle, I have added a small portion of ardent spirit to the water, with excellent effect, for it carries off the superfluous heat by a more rapid evaporation from the surface. (j)

When the warm bath is employed, the patient should remain in it at least ten minutes, or a quarter of an hour, otherwise it will be rarely followed by any permanent good. Perhaps it is difficult to speak with accuracy of the comparative utility of the tepid affusions and bath; but the latter has appeared to me more decidedly serviceable, its power in reducing heat, frequency of pulse, and febrile irritation, having been generally greater, and of longer continuance. But, as a counter-balance to these advantages, the affusions can be more frequently used, since they do not induce so much fatigue. Where insurmountable objections exist, in the patient or his friends, against the use of the tepid bath or affusions, partial ablutions of cold or warm water may be substituted, and with the aid of the free admission of fresh air, they are often of much benefit.

(j) The patient should also be allowed to drink freely of cold water. Dr. Smith observes, "When patients, sick of this disease, desire cold water to drink, it should not be denied them—they should be allowed to drink *ad libitum*." Formerly patients were wholly denied the use of this grateful beverage, and we fear are too frequently cut short now. We may safely follow Dr. Smith's advice, even to the very letter.

The morbid temperature in typhus, is sometimes partly dependent on extraneous causes, as the heat and closeness of the chamber, or an extraordinary quantity of bed-coverings; and even under such a state, I have occasionally known patients with a dry and burning skin actually to complain of chillness, their too officious attendants carefully excluding every breath of air, and drawing the curtains closely round the bed, to prevent them, as they supposed, from catching cold.(k) When causes similar to the above are present, the practitioner cannot immediately ascertain whether the morbid temperature of the skin be strictly febrile or not: and therefore he ought to remove them, and wait at least half an hour, that he may entirely satisfy himself as to this point; for if the cold water were rashly dashed at once over a patient, confined in such a warm, stifling atmosphere, the result might be injurious, if not dangerous. Nor should any one, when about to advise this powerful remedy, rely implicitly upon his sense of touch, or upon the feelings of the sick, in regard to the degree of preternatural heat, but ascertain it precisely by an accurate thermometer.

The cold and warm affusions may be servicable not only by exciting a new train of sensations in the nervous system, but by removing morbid heat and irritation, and by reducing the force and frequency of the pulse, as well as by restoring the natural functions of the skin. It is chiefly with a view of cooling the surface of the body, that both these expedients have been used and recommended; as if modern practitioners had imbibed the speculation of Plato, who thought that a continual fever proceeded from an excess of fire. But I have never seen them really advantageous, except when they diminished the

(k.) This fact should be constantly borne in mind. Patients frequently complain of a great degree of cold, when to the feel, the skin is very uncomfortably hot, and on the other hand, not unfrequently they are exceedingly hot, when the skin, to the attendants would indicate a great degree of cold. By attending to these changes we are able generally, to alleviate very considerably the sufferings of the patient.

action of the heart and arteries, and produced something like a healthy perspiration; and I suspect that, whatever may be their immediate influence on the temperature and nervous system, their permanently good effects are to be attributed to the changes which they induce in the circulation. With the exception perhaps of venescction, there is not a more powerfully antiphlogistic mean, in certain fevers, than the affusion of cold water, which has also this peculiar advantage, that it is highly invigorating; while phlebotomy and other depletory measures have a tendency to debilitate, when pushed beyond a certain point. It is, however, in the simplest forms of typhus, that this remedy is so generally efficacious; and the warmest admirers of Dr. Currie surely cannot deny, that, in the ardour of his inquiries, he has overlooked some of the most interesting varieties of idiopathic fever, in which cold water is either wholly inapplicable, or of limited utility, as will be exemplified in another place.

From all that has been remarked, it will be manifest, that cold and tepid water may be profitably applied during almost the whole period of excitement. It is in this stage, too, that purgative medicines are so exceedingly useful, and they ought to be exhibited every day, either a little before or after the application of the warm or cold affusions; a judicious combination of both these means being much more efficacious, than either of them singly employed.

Boerhaave has said, that the strength is not easily reduced by evacuations, in the commencement of febrile disorders; and if this observation be more particularly applied to those produced by purgatives, it must be allowed to be the most correct; the debility caused by their repeated operation being far less than might have been previously supposed, and trifling when compared to the general good which they produce. The world is greatly indebted to Dr. James Hamilton, senior for having so firmly established the usefulness of aperient medicines, which, notwithstanding the testimonies of some ancient and modern physicians, in their favour, were either thought

pernicious, or not generally admitted in contagious fevers, before the publication of this work,* than which none perhaps of greater value has appeared in the medical republic, since the days of Hippocrates. But as no human performance was ever yet perfect, so the defect of Dr. Hamilton's work, in regard to febrile diseases, is that he has not marked with sufficient minuteness the stages and conditions in which purgative medicines ought, and also those in which they ought not be employed; for however appropriate *purgatives* may generally be to the stage of excitement, yet when that of collapse approaches, they may often be followed by a fatal exhaustion, and those milder medicines called *laxatives* are then mostly preferable, as shall afterwards be made evident.

Seldom less than four or five alvine evacuations should be daily procured, during the stage of excitement in tolerably robust subjects; and as the bowels, for the most part, are then preternaturally torpid, pretty full doses of medicine should be exhibited, that no time may be lost in the reception of small and ineffectual ones. In the commencement and whole course of typhus, it sometimes happens, that the bowels are in an apparently lax state: but if the evacuations be carefully inspected, they will almost always be found very fetid and mud-coloured, or slimy, chopped, and scybalous; and therefore aperients are indispensably requisite, to remove the abdominal irritation, of the existence of which such stools afford the strongest presumption.

Purgatives seem beneficial, by unloading the intestines of faeces and excrementitious matters, which, when retained, excite and keep up much general irritation. But is it not exceedingly probable, that they have another and far more salutary effect, in restoring healthy secretion, and removing irregular distributions of blood from the head, liver, and other vital parts? The full operation of aperients sometimes reduces the morbid

*Observations on the Utility and Administration of Purgative Medicines in Several Diseases.

heat of the skin, and the morbid force of the pulse, almost as effectually as the affusion of cold water or venesecion ;—consequences which surely indicate, that their action extends further than the mere removal of fecal matter from the intestinal canal. In truth, a simple *laxative* will be found to effect little in the first stages of fever, when a brisk *purgative* produces the most unequivocal advantage ; a demonstrative proof, in my opinion, that the benefit resulting is not altogether from the mechanical dislodgement of the feces, as the excellent author of the above work on purgative medicines seems inclined to suppose. Yet I believe that purgative medicines are also beneficial by preventing, through their operation, the absorption of the morbid secretions and excrementitious matter of the intestines : for when these have been allowed to be retained in typhus, I have generally observed a considerable increase of irritation, with an offensive odour from the lungs and from the skin ; and on the contrary, when the morbid secretions and excrementitious matter have been regularly evacuated there has mostly been a diminution of irritation, with an absence of this peculiar odour. (1)

My observations on the qualities of febrile urine have not led to any practical results of consequence. Having, however, often remarked an alarming increase of the pyrexial symptoms from a retention of urine, I cannot refrain from suggesting, that practitioners should make a point of ascertaining whether the patient passes it every day in sufficient quantity ; and they should not allow themselves to be deceived, when it constantly dribbles away, for while that is the case, the catheter in general is absolutely necessary,—not to mention the great attention which is then requisite to prevent excoriations of the perineum or adjacent parts. But if the bowels be kept open from

(1) Our author's remarks in the foregoing paragraph should be particularly attended to, the more because many practitioners seem to think if the bowels are rather loose, no purgative medicine is needed. This surely is an error, and not unfrequently we fear a fatal error. It follows by no means, that the bowels are unloaded, because discharges are frequent.

the beginning, a complete or partial retention of urine will hardly ever be witnessed in typhus, or indeed in any other fever.

Perhaps the period is fast approaching, when diffusible stimuli will be universally prohibited in the earlier stages of almost all ardent fevers. It may be laid down as a principle, that they are very detrimental in typhus during the stage of excitement; and upon this point I can speak with much confidence, having not only frequently seen the baneful effects of their exhibition, but the salutary change which has followed their abstraction. It would be quite as rational to give a half intoxicated man a tolerably free allowance of ardent spirit with a view to make him sober again, as to attempt to restore at this time, a typhous patient, by the administration of wine; for he may be said to be in some degree intoxicated by the stimulus of the fever, and he will therefore be more affected by every glass of cordial that is administered. It has been contended, that wine does not stimulate so much in fever as in health; but so far from this being the case it has always appeared to me to stimulate much more, while the stage of excitement continues. Strange as it may appear, it is still the custom of many practitioners to pour in large quantities of wine indiscriminately, throughout all the stages of the genuine typhus. If, by any chance, the energies of the constitution should finally prevail against both the disease and this injudicious treatment, the recovery is falsely attributed to the wine, and thus a most dangerous error is at once propagated and respected—an error by which an immense number of febrile patients has been destroyed. When strong stimulants are exhibited at the time, and in the manner above noticed, they have a powerful tendency to produce inflammation or congestion in the visceral organs, and thus to render the chance of recovery at the best very doubtful.

There is generally some remission of the fever in the simple typhus towards the morning, and the patient will almost always be much less oppressed at that than at any other period of the day; but as the excitement gains ground, the debility in-

creases, and may be observed to be the greatest when the exacerbation is at its highest point in the evening. And surely this fact, which I have repeatedly witnessed, goes far to prove, that the debility in this stage is merely the consequence of the excitement. If, as some have contended, the debility were real at this time, how comes it to pass, that it is invariably increased by diffusible stimuli and animal food, and diminished by purgatives, spare diet, and whatever allays or lessens the excitement? When the doctrines of debility were so prevalent, it was the established practice to give strong wines and broths during the whole period of excitement, and the fatality was extremely great: but now, wherever the antiphlogistic regimen has been adopted, instead of those pernicious means, the disease has been generally found remediable in the beginning.

With respect to diet, I have always endeavored to make it as simple as possible, being firmly persuaded, that there is no disease in which the stomach should be less pampered than in typhus, and this indeed is pointed out by the loathing of food with which it is attended. Moreover, it will be found impossible to support the strength of the patient by a strong and varied diet, so long as the excitement continues; nay, it will have a directly contrary effect, for by augmenting the febrile irritation, and disordering the digestive and biliary organs still more, it may eventually induce local inflammations, or congestions of a fatal description. Milk largely diluted with water, a little thin arrow root, milk-whey, barley-water, or thin gruel, will answer every purpose of sustaining the powers of the system, without exciting the heart and arteries. There is a strong popular prejudice against the use of milk in fevers; but popular prejudice is sometimes merely another name for popular error, and it is most assuredly so in the point under consideration. Hippocrates simply declares, that milk is bad* in febrile

* Popular errors, on medical subjects, are mostly the errors of the physicians of former ages. It is, perhaps, not improbable, that the one here mentioned, in respect to milk, originated with Hippocrates, and, having been embraced by others, has thus been transmitted down to our times.

distempers; but Sydenham and Heberden speak of it very favourably, and my own experience has confirmed their recommendations. But it is not the quality only of food that ought to be regarded, for as it is customary in fevers to give very small portions frequently, much too large a quantity is often administered in this way; and the consequence generally is an increase of general irritation, and sometimes even an attack of inflammation, especially of the stomach or intestines. The quantity of food, therefore, in the stage of excitement ought to be exceedingly moderate, as well as its quality mild; and by an attention to these two circumstances the waste from the necessary evacuations may be sufficiently supplied, without the risk of either augmenting the general excitement, or of occasioning any topical irritation.

At all times of the second stage, the admission of fresh cool air, frequent changes of linen, thin bed-coverings, cold sub-acid drinks, quietness, and the abstraction of every extraordinary stimulus, are particularly calculated to allay the universal excitement and irritation, and are in general highly acceptable to the sick; but with respect to ventilation in this stage, currents of air ought always to be avoided, as they may produce some pulmonic or abdominal inflammation, or give rise to an attack of rheumatism or erysipelas.

In the milder cases of the simple typhus, little will be needed in the stage of collapse, the powers of nature in general, assisted by light nutriment, being fully adequate to the recovery. But in the more urgent examples, the treatment in several particulars must be materially different from that laid down in the two former stages. Generally speaking, in this stage one or two moderate dejections will be quite sufficient in twenty-four hours. There are, however, some exceptions to this rule, which it may not be improper to notice here.

When the exhibition of purgative medicines has been neglected in the beginning of typhus, an extraordinary accumulation of feces often exists in the last stage, and occasions an alarming oppression of the brain, accompanied with great pros-

tration of the natural powers, flushed face, suffused eye, delirium, or some degree of stupor, high breathing, foul tongue, and quick, uneven pulse. In such cases, the abstraction of the smallest portion of blood would be eminently hazardous; but I have frequently seen the most agreeable change induced by full doses of brisk purgatives, such as calomel with jalap, aided by large enemata, the strength of the patient having been supported during their operation by moderate allowances of good wine. In the advanced stages of typhus, when cerebral oppression is thus secondary of loaded bowels, much sometimes may be affected by the combined employment of purgatives and cordials, care being taken that the former act with tolerable freedom, and that the latter only be given to obviate the debility, without too powerfully exciting the general circulation.

In the last stage of typhus, when the bowels have not been regularly moved in the preceding stages, it is not uncommon for patients to pass frequent, small, loose, fetid stools, which are sometimes mixed with slime and blood. Yet such an occurrence does not prohibit aperients, but rather pressingly indicates the necessity of their exhibitions; since the distressing looseness is the consequence of offensive sordes retained in the bowels, and ceases when they are effectually removed by active purgatives; though it will often be requisite to give a small opiate soon after their operation, and to support the strength with cordials, as in the instance before mentioned.

If the above circumstances fully authorize the liberal employment of purgative medicines in the last stage of typhus, there are others which seem almost entirely to prohibit them. If patients be kept in very close apartments, and even if their bowels be daily attended to during the first and second stage, it may be occasionally observed, that on the approach of the last stage, frequent, copious, black bloody stools are passed without any offensive odour. About the same time, too, peculiar petechiae begin to show themselves upon the extremities, which at first are only few in number, and appear as if a drop of very

black ink had been allowed to dry here and there upon the skin, and as if they could almost be rubbed off by the fingers ; but they soon become numerous, and spread over different parts of the body, and at last are generally accompanied by discharges of blood from the nostrils, mouth, bladder, or bowels. Under these circumstances, I have almost always observed, that aperients increased the effusions of blood, and caused a sudden depression of the vital powers. Indeed, whatever plan may be pursued, there is no calculating upon success ; but the free admission of fresh air, the liberal allowance of lemon juice, mixed in a little Madeira wine and water, with very small doses of opium and aromatics, are the means on which most reliance may be placed. After death, in two cases of the above description, with the exception of some trifling congestions, no decidedly morbid appearance was discoverable, nor were there any coagula of blood in the intestinal canal, though much had been previously evacuated. As instances of this kind are almost invariably fatal under the common modes of practice, it is evident that we are still ignorant of their real nature. Repeated reflections upon them have led me to suppose, that the cause of death is some peculiar change which takes place in the blood itself, rendering it unfit for the purposes of vitality. The foregoing hemorrhage from the bowels is peculiar, inasmuch as it takes place in the universal collapse, and is dependent on a depraved state of the fluids and a loss of tone in the overloaded capillary system of vessels ; but when bloody stools occur in the stage of excitement, they are indications either of preternatural fulness of the liver, or of inflammation of the mucous membrane of the bowels, and therefore such evacuations must not be confounded with the hemorrhage, which has been so specially noticed in conjunction with the inky petechiæ.

Sydenham and some later writers seem to have thought that petechiæ were the effect of increased arterial action, while others again have considered them as the strongest proofs of general relaxation. It has appeared to me, that they sometimes arise from increased action, as in the stage of excite-

ment; at other times from relaxation of the extreme vessels, as in the stage of collapse; and frequently from a dissolved state of the blood, which undoubtedly occurs in the last stage of many fevers.

Different kinds of purgatives being mostly requisite in the different stages of the simple typhus, some remarks on the effects of those in common use may perhaps serve to show what sort ought to be selected. Calomel has probably a more general influence than any other cathartic; it excites a degree of nausea in the stomach, emulges the diliary ducts, dislges scybala most effectually, corrects morbid secretions, and with small doses of the antimonial powder,* or of the tartrite of antimony, promotes perspiration as well as purges; and this combination, therefore, is well suited to the stage of excitement. Castor oil, in one respect resembles calomel, for it completely unloads the alimentary canal of its contents; besides, it tends to allay tormina or tenesmus, and every species of irritation about the rectum.† Jalap and rhubarb seem chiefly to exert their power on the larger intestines; when conjoined with calomel, they are very certain in their operation, and when given after it, especially rhubarb, have a tendency to remove the tenesmus and the mucous discharges, which it frequently produces exhibited alone. The neutral salts, such as the sulphate of magnesia, have a peculiar effect on the inner coat of the bowels, evinced by copious liquid stools; yet they are not to be trusted to singly, because they may, though given day after day,

* Oxidum Antimonii cum Phosphate Calcis. Phar. Ed.

† It is very common to give castor oil, made into an emulsion by the yolk of an egg, or a small portion of alkeli: but this is a most exceptionable prescription, for I have repeatedly remarked, that it is very liable to occasion vomiting, and is generally uncertain in its operation. One of the best modes of administering castor oil is to mix it in lemon juice and water, or in warm coffee. Under this simple form, it sits most easily upon the stomach, and operates with the greatest certainty. The dark-coloured castor oil, or that called West Indian, is more efficient as a purgative than the pale-coloured, or that called East Indian.

leave a considerable quantity scybala in the arch of the colon. Magnesia often allays irritability of the stomach, particularly when accompanied with bilious, or sour watery vomitings; it may therefore be advantageously combined in many cases with other aperients, and, when followed by lemon juice, is frequently a certain and powerful purgative. Aloes, and similar drugs have most influence on the lower part of the intestines, particularly when prescribed in the form of pill. From these hints it will be apparent, that calomel, antimony, jalap, and the like, with neutral salts occasionally, are most proper in the first and second stage, and that, with some exceptions already mentioned, the mildest laxatives are most proper in the last stage of the simple typhus; but as castor oil, by varying the dose of the dark or pale-coloured, may be made to answer either as a purgative or a laxative, so it will be found upon the whole one of the most useful aperients.

It is in the stage of collapse, that the principles laid down by the philosophic Dr. Currie may be deceptive, in regard to the application of cold water. For it not unfrequently happens, that a glow of heat is diffused over the surface, and if the thermometer be applied, a temperature somewhat above natural even will be manifested, which may continue for one or two hours together, though it is seldom longer stationary at one time. Yet if the patient be narrowly examined, some parts of the body will be found rather cooler than others, and symptoms of general relaxation will be pretty evident. At this period, neither the cold nor the tepid affusions can be applied to the whole surface without great risk, though partial ablutions of the hands, face, breast, and feet, with cold or warm water, are often highly refreshing, as are likewise the temporary but cautious admission of cool air, and very small draughts of any cool liquid—such being the difference between the partial and the general application of the same or similar means.

Having expressed myself strongly against the exhibition of wine in the first and second stage, candour requires me to confess, that I have often seen it useful in the last, as indeed has

already been hinted, in speaking of cerebral oppression from loaded bowels, and of apparent diarrhoea, attended with a state of real debility. But on the first approaches of the stage of collapse, wine should be sparingly administered, and its effects carefully noticed. If it diminish the irritation and render the skin universally moist and warm, the tongue softer as well as cleaner, the breathing slower, and the pulse less frequent and fuller than before, the propriety of proceeding in its use is strongly indicated. Whereas, if the irritation become greater, the skin hotter, the tongue drier, the breathing quicker, and the pulse sharper and more rapid, its further employment is most certainly contra-indicated; though it should not always be abandoned on the first but sometimes have the chance of a second trial, after the expiration of a few hours.

Madeira is perhaps preferable to every other wine, being very grateful, and at the same time remaining lightly upon the stomach, but it should not be given in an undiluted state. It has long been usual with me to mix it with four or five parts of milk; and under this form it makes an excellent drink and diet, in the advanced stages of typhus. It is impossible to fix the precise quantity of wine that ought to be given, as it must be varied according to the nature of the existing symptoms, the age, constitution, and previous habits of the patient. As some kind of rule, however, from one to two-thirds of a pint, in twenty-four hours, is amply sufficient for an adult, though it should not only be given diluted, but in small portions at a time. When the stronger wines excite too much, the weaker, such as claret, may be tried; and if these should not answer, small, repeated draughts of mild brisk ale or porter may often be given, with excellent effect. Indeed, in many cases, fresh malt liquor quenches the thirst, supports the strength, and allays the irritation decidedly better than wine; and I know no diffusible stimulus which, upon the whole, is preferable to it in the last stage of typhus, as it is well suited to give that degree of vigour to the system, requisite to remove those partial congestions, which often exists at that period in combination with

general debility. Dr. Stoker of Dublin, in a sensible but an incomplete work,* has spoken highly of yest in the advanced stages of fever: and I have often had reason to be satisfied with its power of gently opening the bowels, cleaning the tongue, and diminishing thirst, especially when administered alternately with ale. When great irritation exists in combination with great exhaustion, it has repeatedly appeared to me, that those waters which contain a large portion of carbonic acid gas have been very useful in lessening the irritation: and therefore I cannot but recommend this gas to the consideration of others, where tremors of the muscles exist, with a soft weak pulse, and a highly susceptible state of the nervous system. As soon as an appearance of convalescence is observed, diffusible stimuli of all kinds must either be lessened or entirely withdrawn, because too liberal or too long a perseverance in their use may occasion a relapse of fever, complicated with some open or masked inflammation of the viscera.

The diet should be light and nutritious in this stage, consisting of arrow root, sago, beef tea, calf feet jellies, or milk. One or two simple articles should be chosen, and strictly adhered to, as they will answer infinitely better than a complication of various things. It is a nice point at this crisis to avoid giving the patient too much or too little nutriment, but even here perhaps excess is the most dangerous extreme. Great anxiety to prevent the sick from sinking, often induces their attendants and friends to give much more food than can possibly be digested, and it either lies as an oppressive load upon the stomach, or induces an exhausting vomiting or diarrhoea. When the weakened condition of the digestive and assimilative organs are considered, it cannot but appear, even from reason, that small portions of plain, simple food, given at stated intervals, will best support the remaining strength of the system, and this is really confirmed by experience. Heberden

* A Treatise on Fever, &c. By William Stoker, M. D. London, printed for Longman & Co. 1815.

has said, that fresh air is one of the best cordials in fever; and a similar remark may be extended to sleep, with additional force. Whenever, therefore, patients fall into a tranquil slumber, they should hardly ever be disturbed to give them food, until six or seven hours shall have elapsed:—such a repose is most desirable, and will sometimes renovate nature, when her faculties had before seemed prostrate beyond the power of recovery.

In the last stage of collapse, the temperature of the apartment should not be permitted to be so low as to endanger an attack of chilliness; for where the general exhaustion is great a rapid reduction of the animal heat may speedily be fatal, by sinking the heart's action. In some instances I have known an exposure to the cold air, in getting up to the night chair, cause a shivering fit, under which the patient died in a few hours; but death will rarely happen, if some warm stimulant be immediately administered internally, and sufficient warmth applied to the external parts of the body. This depression of the animal heat, however, occasionally comes on in the collapse of typhus, without any apparent cause; an instance of which I once witnessed in a medical gentleman, who I believe would have died, if external and internal warmth had not been promptly and perseveringly employed.

Perhaps it may be asked why I have not mentioned venesection as a remedy in the onset of the simple typhus? But I appeal to every practitioner of experience and candour, to support me in the assertion, that it may be safely dispensed with in the majority of cases. When typhus appears from the first under its least complicated form, the early adoption of the plan laid down will in general not only ward off inflammatory symptoms, but those putrid ones which are apt to arise out of them; and thus it is calculated to prevent the necessity of blood-letting in the second stage, and the free administration of stimulants in the last. At the same time, whenever, in defiance of the means already recommended, there is an early threatening of some visceral inflammation, the immediate em-

ployment of general or local blood-letting, promptly followed up by the application of blisters, will generally be found necessary. It may indeed be regarded as an axiom, that bleeding, if it should not do good, will hardly ever do any harm, in the *commencement* of febrile diseases; but local will almost always be preferable to general in weak habits who have been badly fed, and the contrary in those who are naturally robust, and have been well fed.

It has already been hinted, that fever and inflammation may supervene during a state of convalescence from the simple typhus. The causes of such an occurrence may generally be traced to an imprudent exhibition of stimulants, to a neglect of the bowels, or to an unseasonable exposure to cold. When patients are once deemed convalescent, we are too apt to leave them to pursue their own inclinations; but instead of being so careless, we should warn them against what might be injurious, and likewise point out what is most proper. If any secondary fever should arise, from some of the causes enumerated above, it ought to be ascertained, whether it be an affection of simple excitement, or complicated with some visceral inflammation. If it be a simple fever of excitement, the antiphlogistic regimen, and a few brisk purgatives, will soon remove it; but if it be conjoined with any visceral inflammation, to these means, venesection and blistering must be generally united, though the quantity of blood drawn must be cautiously regulated by the strength of the patient. This secondary fever, however, is most frequently of a simple character, and when it is combined with inflammation, the pleura or the liver is the part commonly attacked; a stitch in the side, and an accelerated pulse being often the first warnings of the approaching danger.

It is finally to be observed, respecting the treatment of the simple typhus, that much may be safely attempted in the first and second stages, and the practitioner is highly culpable, who neglects to avail himself of every favourable occasion which they offer. But in the last stage, particularly of severe cases, it is most dangerous to attempt a great deal; and the *nimia*

diligentia, the extreme officiousness which leads to a variety of prescriptions must be studiously avoided, since the time for demonstrating the decided efficacy of medicine is unfortunately past; and perfect quietness, ventilation, cleanliness, regular supplies of proper cordials and food, mild laxatives, with occasional small opiates to allay irritation, will often do more towards restoration than all the boasted specifics in the world. In short, we should in some degree, imitate the practice of Asclepiades, who, as Celsus informs us, allowed his patients little respite in the beginning of fevers, but administered even to their luxuries in the advanced stages.

SECTION V.

TREATMENT OF THE INFLAMMATORY TYPHUS.

If blood-letting be used in all the various forms of typhus, without due regard to the period of the disease, the quantity of blood drawn, the manner of abstracting it, and to the age, habits, and constitution of patients, it must doubtless be often followed by fatal consequences. But, on the contrary, if it be employed with discretion at an early period of the inflammatory or congestive varieties of the complaint, it may be proved to be an instrument of the greatest utility, effecting what no other can so well effect—the preservation of the structure of the main parts in the living machine, which endangered by preternatural irregularities or accumulations of blood. Through the prevalence of false hypotheses, forty years ago purgative medicines were prohibited, but happily their efficacy is now universally acknowledged; and before forty years more shall have elapsed, the efficacy of blood-letting, I doubt not, will be as firmly established in certain varieties and stages of most contagious fevers.

The Greek, Latin, and Arabian physicians used phlebotomy in almost all acute fevers; and every one knows that it was

the favourite practice, not only of our illustrious countryman Sydenham, but of many of his contemporaries and successors, who thought and acted for themselves, amidst the fluctuations of fashion and of theory. There truly seems an uncommon agreement between the best practical authorities of ancient and modern times, with respect to the propriety of venesection in certain forms of idiopathic fevers,* whilst every new fact that is brought to light tends more firmly to establish its usefulness in certain cases, when discreetly employed. During the rise and progress of the fatal doctrines of debility and putridity, the lancet was condemned in many fevers, and by authors who, with a singular inconsistency continued to commend the sagacity of Sydenham. But the speculations of Cullen and other men of genius which have so long obscured our pathological views, are at length passing away, like clouds before the spreading light of more favoured times, and we may reasonably hope, will soon entirely disappear from the horizon of the medical world.

As reformations in physic, like reformations in politics, often extend further than their first movers intended, perhaps there is even now a danger lest, in abandoning the notions of debility and malignity, we should run into the opposite extreme, and consider some idiopathic fevers more inflammatory than they really are in this country. An error of this kind, I conceive, has been committed by some recent writers of note, who, in their respective essays, have frequently confounded ordinary fevers with the true typhus fever, and thus unconsciously given to the latter too high an inflammatory colouring. Probably the numerous and very excellent treatises published by the practitioners in warmer climates, where fever presents a more ardent aspect, and is attended with higher excitements, have powerfully contributed to produce the recent changes in many

* The reader will find a full confirmation of this assertion, in an interesting Essay on the Agreement betwixt Ancient and Modern Physicians. By John Barker, M. D. London: printed for G. Hawkins, 1748.

important points of opinion and practice. Yet with whatever disadvantages it may be attended, the lapse of a few years will enable the physicians of Great Britain to appreciate and apply venesection as correctly as other evacuants. The grand principle of early depletion, either by bleeding or purging, may be properly extended to almost all acute fevers, idiopathic and symptomatic; although it cannot always be carried so far in the former as in the latter, nor perhaps in temperate as in tropical regions; and although, like other general principles, it requires, to be modified by the nature of the existing circumstances. The successful application, too, of this principle, depends much upon a judicious choice of the means, and the time and the mode of their employment, as will be shown in detailing the treatment of the inflammatory typhus.

In a former part of this work, it has been stated, that I do not consider inflammation as an inseparable and essential part of typhus; but, having so frequently seen that disease combined with inflammation, I have simply used the term inflammatory typhus to express that combination, without attaching to it any abstract or speculative opinion. It has not been uncommon in medical writings to oppose the attribute typhons to that of inflammatory, as if the existence of the one was incompatible with that of the other: but this, like many other prejudices which have the sanction of great names, is founded on theory rather than experience, since, beyond all dispute, a genuine typhus may be complicated with an acute or a sub-acute inflammation. It does not follow, because this disease originates from a specific contagion, that it can never be joined with the excitement which produces inflammation; for we have numerous instances of specific contagions occasioning fever with inflammation,—as those which, to mention a few examples, give rise to the Egyptian ophthalmia, the scarlet fever, and the small pox. Yet setting aside analogical reasonings altogether, typhus has been so repeatedly presented to me in conjunction with inflammation, that I am fully confident, to be successfully encountered it must often be considered and treated as

an inflammatory disorder. Yet, desirous to avoid rashness on the one hand, and timidity on the other, I shall endeavour to show when venesection is proper, and when improper.

It is in the acute species of inflammation, sometimes commencing on the first, second, or third day of the second stage of typhus, for which, provided it be seated in a part of vital importance, venesection is indispensable. At an early period of such cases, the strength is suppressed, but not subdued; and as the great suppression is then principally the effect of the topical disorder, venesection, by diminishing or removing that disorder, diminishes or removes the load which impeded the vital functions; and the strength, compared before and after the operation, is therefore increased, instead of being lessened, a fact which I have frequently noticed. But it must never be forgotten, that general blood-letting is only advantageous, or even admissible, in the beginning or acute of the acute inflammation, because when it has existed for a few days, it is almost invariably combined with universal exhaustion; and venesection will then hardly ever remove it, but contribute to precipitate the patient to the grave, by its powerful impression upon the whole system. When called therefore, to any case of typhus, complicated with an acute inflammation, the practitioner should ascertain, as precisely as possible, the duration of the latter, and the state of the general system. If the topical affection has been but of short continuance, and the vigour of the constitution be merely weighed down, and not really exhausted, let him discard the fears associated with false doctrines, and promptly abstract blood, according, to the seat and extent of the inflammation, and till the local pain and general oppression be relieved. But if, on the contrary the topical affection has continued for some days, and there are symptoms of a present or an approaching collapse, let not the evidences of any local derangement induce him to hazard general venesection, as he values the life of the patient, and his own reputation. I have often been consulted in typhus, at the critical moment when the inflammation had advanced so far as to

render the propriety of decided practice very questionable, and yet not entirely to preclude the employment of depletion. In such instances of uncertainty, it may be assumed as a principle, that local is preferable to general blood-letting; and in conjunction with blisters and purgatives, it will sometimes surpass the expectations of the practitioner. There are circumstances which will even justify the simultaneous employment of local blood-letting and diffusible stimulants in typhus; as for example, when the stage of collapse approaches, and the head or chest, from the previous one of excitement, has become oppressed with an engorgement of blood, which is rapidly overpowering the vital energy. In such lamentable instances, although blisters, laxatives, and mercurials, may be conjointly serviceable, the immediate chance of relief is from the local abstraction of blood, by leeching or cupping, and the exhibition of wine; the first with a view to relieve the topical accumulation, and the last to support the system under the evacuation. What was formerly said about the combination of purgatives with cordials in the last stage of simple typhus, may tend to illustrate the union of these seemingly inconsistent, but sometimes efficacious means, against the conjoint use of which the ingenious Dr. John Brown has so indiscriminately protested.

General and local blood-letting then, it will be perceived, are sometimes absolutely necessary in typhus; at the same time it must be recollected, that though the reduction of an acute inflammation may be paramount to every other consideration in the treatment, yet the system cannot bear so large and repeated losses of blood in this fever as in simple acute inflammations, such as gastritis, unconnected with contagion. In support of this opinion, I might confidently appeal to the results of my own practice; but proofs must be familiar to every unbiassed and experienced physician. We may indeed have ocular demonstration of the fact, by attending to external inflammations complicated with the genuine typhus, which are well known to require a less abstraction of blood than those conjoined with an ordinary fever. Nevertheless, the distinc-

tions of typhous and inflammatory fever have, in a practical view, been insisted on too forcibly by many authors, who erroneously conceive that these affections require almost opposite modes of cure; whereas they have many appearances in common, and are remediable upon similar principles. In all fevers of an open character, or in which heat and arterial re-action are developed, there are, to pass over the first, two grand stages, one of excitement, and another of collapse; and it is in the former that depletion is so excellent, while it is always dubious, and often extremely dangerous in the latter. In violent cases, the stage of excitement soon passes away, and then come those malignant symptoms, as its effects, which, viewed independently of the preceding one, have contributed to mislead so many pathologists and practitioners. Let the circumstances under which remedies are used always be carefully noted, and the points at issue, in regard to the treatment of fevers, will soon be satisfactorily settled.

When the presence of an acute inflammation in typhus imperiously calls for venesection, the first operation should be made as effectually as possible, for the reasons already advanced. The change which a temporary suspension of animation produces, is often strikingly beneficial in phlogistic diseases. Fully satisfied of this, it has long been my practice to order patients, labouring under acute inflammations of the viscera, to be bled until some faintness supervened, that syncope if possible might be insured after the blood has been restrained. But, as in the ordinary manner of performing venesection, syncope can only be caused by very copious depletion, it is a desideratum in the treatment of the inflammatory typhus, to induce it with as little loss of blood as possible; and this may be best accomplished by bleeding from a large orifice, the patient standing, properly supported, erect upon the feet; for ten, twelve, fourteen, or sixteen ounces taken away in that position, frequently have the desired effect, under all the forms of the inflammatory typhus. When there are obstacles in the way, to prevent the performance of venesection in the above manner,

it may be done while the patient is placed on the breech, with the trunk perfectly erect; for even in that posture, faintness will come on much sooner, and consequently with a smaller loss of blood, than when the body is recumbent. Or the vessel may be opened as the patient lies flat upon his back, and about five or six ounces allowed to flow, when his trunk should be suddenly elevated to a right angle with his lower extremities, and this will often cause an immediate degree of sickness, and soon lead to faintness. In some plethoric subjects, however, it is often desirable, that the vessels should be relieved of their extreme fulness, and therefore it is best to bleed them supine, as more blood can be obtained in that than in any other position. On the contrary, in weak or highly irritable habits, when it is frequently of the utmost consequence to save their strength for an ultimate struggle, we should use every expedient in our power to make the loss of blood as little as possible without stopping short in the reduction of any topical inflammation, and this ought especially to be considered in typhus, since the fever may run a determinate course even when the inflammation has been arrested. This is one argument which might be brought, amongst many others to prove, that fever is not dependent on inflammation for its existence, as some of the most enlightened pathologists now contend. But that the inflammatory typhns, like the simple, may be extinguished in the commencement, the following cases will exemplify, and many others in my possession could be adduced in support of this point.

Mr. Cavel, an intelligent pupil of mine, exposed himself much to contagion, by remaining long about the patients, while he assisted me in taking notes of extremely severe cases. For several days prior to the coming on of the urgent symptoms, he felt considerable inability to perform any accustomed exercise of mind, having no inclination to move unless compelled from absolute necessity. He had, besides the loss of muscular power, some slight pain in the head, with soreness of the throat. On the 16th of the month, while in the street, he was attacked

with a most violent pain in the head, back, and limbs, attended by great languor and oppression. The soreness of the throat increased, the skin became hot, the tongue foul, the eyes blood-shot and glary, and pressure over them gave much pain. His pulse in the evening was 138 in the minute, strong and hard. On the morning of the 17th, it was 127, and still hard, and he was bled, while it yet continued at that rate, to the amount of about twenty four ounces, which altered it but little in frequency, though it became not so resisting as before. In the evening of that day, the fever running high, he was bled to about eighteen ounces, when his pulse sunk to ninety; but though it rose a little afterwards, all pain of the head left him till the morning of the 19th, when it returned and was accompanied with considerable giddiness. These symptoms were removed by another bleeding to the amount of eighteen ounces, from which time he had not any return of fever, having taken no medicines, except purgatives to relieve the bowels. Mr. Cavel, without being stout, was muscular and well organized, and though he lost sixty ounces of blood in the three operations, and was very freely purged, yet he soon regained his former strength and activity.

Not very long afterwards, while considerably fatigued, I sat down on the beds, for some visits successively in taking notes of the cases of typhus which were under my care. In a few days, I experienced an exceedingly uncomfortable weight about my stomach, attended by a capricious state of the appetite, clammy tongue, languor, and occasional chills. These feelings increased for three days, when a dull head ache came on, and a great disinclination to muscular and mental exertion; but having some important duties to perform, I dragged myself about for four days longer, though at nights I obtained little sleep. On the Sunday morning a greater effort than usual was necessary to force myself into action, but I prescribed for several cases of typhus and also for some of the puerperal fever, in two public Institutions which I then attended; and in returning homeward, excessively exhausted, I was suddenly

attacked with great pain, and swimming in the head, while so overpowering an oppression came over me, that I felt as if I should have fallen in the street. With considerable difficulty I reached a carriage not far distant, but the rattling of the wheels upon the pavement so greatly increased the uneasiness in my head, that, in order to avoid it as much as possible, I was obliged to be driven a very round-about-way to my house, which I reached about five o'clock in the evening. The pain in my head was then so intolerable, that I rashly took sixty drops of laudanum, and went to bed soon afterwards in a state of strange confusion. This dose shortly threw me into a disturbed sleep, in which I had the most horrible dreams. About ten o'clock I awoke with an almost indescribable sensation in my brain, but I endeavored to rally the mental power which I had left, and, by repeated efforts, commenced an examination of symptoms. It felt to me as if an immense weight were pressing down the bones of the head, and as if the brain were re-acting against this pressure, by violent and rapidly successive throbs; and these sensations were much augmented by attempting to move my head, which brought on a severe giddiness for some time afterwards. On pressing my fingers over my eyeballs, each was very tender, and both noise and light were exceedingly offensive; but, finding that a succession of human figures passed before me when left in the dark, I requested that a faint light might be kept in my chamber. My tongue felt dry and rough, my skin seemed pungently hot, my pulse was exceedingly rapid, and somewhat resisting; but the cause of all the disease seemed fixed in the brain, for I had no uneasiness in the spine, chest, or abdomen. My feelings most forcibly convinced me, that I labored under inflammation of the brain, and I desired that a surgeon might be sent for, to bleed me copiously without delay. About eleven o'clock, while my brain gave the sensation as if it were almost bursting from fulness, I was bled for the first time, till I nearly fainted, and immediate and great relief succeeded: but as the blood drawn, which amounted to eighteen ounces, was buffy and cupped, my

medical friend requested to bleed me again, and as soon as the faintness left me, twelve additional ounces were abstracted, which nearly induced syncope. After the second bleeding, very little uneasiness remained in my head, and the overwhelming oppression, under which I before laboured, now almost entirely vanished; so that in fact the loss of thirty ounces of blood really seemed to recruit my strength. Ten grains of calonel with about the same quantity of jalap were given to me, and a mixture of salts and senna was repeatedly administered in the night, till copious evacuations by the bowels succeeded. My feelings throughout the whole of Monday were comparatively comfortable, and nothing indicated any disturbance in the brain, except a sensation of lightness, augmented on moving the head. Before the first bleeding, my pulse, I was told, ranged above 140 in the minute, but it was somewhat under 100 all day, and as night approached I had a disposition to sleep, and obtained some, broken however by disagreeable dreams. On Tuesday morning, hardly a symptom of disease appeared to me to be left, but several friends calling to inquire after me, I conversed a little with each, and towards afternoon found myself exhausted and restless, and I had an excessive thirst. As the evening advanced, whenever I closed my eyes I was harrassed with a succession of human figures; but it was remarkable, that none of these were representations of the persons who had visited me, all having faces, with one exception, which I had never before seen. The former sensation in my brain returned, and became so distressing, that I covered my head with a napkin steeped in cold water, but it gave me no relief, and the night was passed in strange and restless confusion. On the Wednesday morning the affection of the brain was if possible more urgent than ever, and I felt so exhausted, that if it had been to save my life, I scarcely think that I could have carried a cup full of water to my lips. At an early hour, a medical friend paid me a visit, and I requested him to bleed me, having an impression on my mind, that I was verging towards a state of stupor from vascular fulness of

the brain. As the operation appeared to him necessary, he bled me till I was on the point of fainting, but I believe that perfect syncope did not take place. For perhaps nearly half an hour, however, I had a feeling of utter exhaustion, combined with a creeping coldness, numbness, and tingling over all the body; and it then occurred to me how easily such a state might terminate in death. As soon as I was able, I requested a little wine and water. A mouthful of this diffused almost instantaneously a feeling of general heat, and the exhaustion gradually disappeared. No uneasiness whatever now remained in my head, and though twenty-five ounces of blood had last been drawn, my strength again seemed to be renewed by the operation. An ounce of West Indian castor oil was prescribed for me, which operated often and powerfully during the day; yet in the evening I sat up with a great deal of pleasure till the bed was made. Soon afterwards I became hot and restless, and about midnight I was in a high state of irritation; but I got out of bed till I grew perfectly cool, and then lying down again, slept soundly, and from that time recovered with rapidity; though for more than a month afterwards very slight causes made my head ache much. (m)

During the whole of my illness I felt very desirous to be able to recollect the symptoms as they rose, and the above is, I believe, a tolerably correct transcript of my feelings, which may serve to show that under an intense inflammation of the brain, some of the intellectual powers may remain entire. The attack was no doubt rendered much more severe than it otherwise would have been, by my persevering to go about with the incipient disease upon me; and I merely mention this circumstance as a caution to others, for I have known some practitioners lose their lives from a similar procedure. Few men live so much for the public and so little for themselves as medical practitioners; but as a general rule, they should make a

(m) The Doctor's own case is an exceedingly interesting one, and should be carefully studied by every practitioner. It is a beautiful illustration of the beneficial effects of blood-letting in this form of the disease.

point of resting immediately when attacked with the symptoms of fever, because the arduous duties of their profession may render the mildest seizure dangerous. I have never seen any medical man labour under what is called idiopathic fever, in whom the brain was not less or more affected ; and this was probably owing to the previous and almost constant exercise of it as an instrument of thought, by which it unquestionably acquires a disposition to disease. It was remarkable, that during the attack, I had an unceasing desire to be bled whenever the symptoms became urgent. This arose as much from instinct as from reflection ; and in severe affections of the brain from vascular fulness, I have known the same desire as strenuously urged from the mere impulse of feeling, by persons who were not of the medical profession. The general oppression was exceedingly great in my case, and probably dependent in a great measure on the cerebral disturbance.

In general, however, I am not an advocate for large and repeated venesection in the inflammatory typhus, having usually seen one or two moderate bleedings sufficient when followed up by purgatives, blisters, leeching, and alteratives ; but even whenever so timely employed, whether the bleedings be large or moderate, they will sometimes fail with every other measure, especially when the inflammation, being removed from one, attacks another organ, which is more liable to happen in typhus than in common fevers. In modern publications it is perhaps too much the *fashion*, if such an expression be allowable in science, to exhibit the successful, and to keep the unsuccessful cases in the back ground ; but those who are most fortunate with evacuations in the general result, cannot deny, that there are exceptions to their efficacy sufficient to show, that we still stand in need of considerable improvement. It was the custom of Hippocrates and Sydenham to publish cases of failure as well as of success : and the former might be made fully as useful as the latter, by serving, like charts, to guard others from the mistakes which had been previously committed in practice.

On the publication of the second edition of these illustrations, the largest quantity of blood, which I had ever ordered to be drawn in the inflammatory typhus amounted to about fifty-four ounces. The ease occurred in a robust and middle aged man, and was from the commencement attended with pleuritis, though it had originated from contagion. Early on the second day of the attack, twenty ounces of blood were taken from the arm, which produced a marked relief; but in about twelve hours, the inflammatory signs again becoming prominent, eighteen ounces more were drawn, with even a better effect than before, and the patient appeared to be convalescent for about two days. But having unadvisedly drunk too freely of strong ale, the pleurisy returned, with violence, for which about sixteen ounces were promptly abstracted, and a large blister applied to the side affected. From this time, the pectoral symptoms, with the typhus fever, rapidly receded, though the patient had a tedious recovery on account of the state of weakness to which he had been reduced; and it is deserving of notice, that when there is a relapse of inflammation in some weak part, the recovery is more slow and uncertain than when no such thing occurs. In some instances of pleurisy, arising in genuine typhus, I have seen depletion commenced under as favourable circumstances as in the above, and yet it failed; an embarrassed condition of the brain with muscular tremors supervening, under which the breathing became exceedingly laborious for some time before death. The brain and lungs often seem to have a reciprocal influence upon each other in fevers, especially of the contagious kind, so that it is not uncommon to see the lungs become disturbed from an affection of the brain, and the contrary; but when disorder is once decidedly established in both organs at the same time, the ease is commonly dangerous, especially when there is a staring, glaring eye, which is always a bad symptom even when the brain alone is affected. In that species of inflammation which attacks the bronchia, the lancet should not be employed, even in young and robust subjects, with the same freedom as in inflammation

of the pleura; and when it attacks weak habits, or persons advanced in life, still greater care is then necessary, for in such, the loss of much blood will sometimes be speedily mortal, though in the beginning they generally bear local bleeding and blistering with advantage. In most pulmonary affections, and particularly of the bronchia, the warm bath is a remedy of considerable power; and the pectoral symptoms will commonly be greatly alleviated whenever the skin is moist, so that a regulated temperature and sudorific diluents are useful, such as tepid weak tea, or diluted lemon juice.

Yet in almost all cases, if the constitution be good, in which there is manifestly a preternatural accumulation of blood in a part of importance, attended with an universal excitement, general blood-letting should be adopted first, and where that fails, local afterwards. Because the general blood-letting, if carried sufficiently far, will immediately diminish that violent action of the heart and arteries by which the inflammation is chiefly maintained; while the local blood-letting will make a still further impression on the heart, and may likewise induce a change in the state of the part affected, on the principle of sympathy or revulsion. Since the first edition of this treatise passed through the press, I have made many experiments as to the power which local blood-letting has over the action of the heart, and have found it infinitely greater than I had previously supposed; so much so indeed, that I am now induced to believe, that the *principal* efficacy of local blood-letting rather depends upon this than any other cause. In the course of these experiments, too, a remarkable and unexpected fact was presented to my observation: namely, that the action of the heart may frequently be weakened by small quantities of blood abstracted by leeches, when moderate or larger quantities would be required to produce a similar effect by venesection from one large vessel; but this however, is more especially the case when the excitement does not run intensely high, and in all examples where it does run intensely high, the general should always precede the local bleeding. Thus if the chest, or the

belly be the seat of the inflammation, a vein may be opened at the arm; and as the benefit is generally greatest when the blood is rapidly abstracted from a great vessel, the orifice should be made very large. This is a point of the first importance, and ought never to be neglected in inflammatory affections of an urgent nature. About an hour after decisive venesection, several leeches may be applied over the integuments of the chest or abdomen, nearest to the site of the uneasiness; but as in visceral affections, the principal efficacy of local blood letting depends upon its influence on the heart, it should be continued until it sensibly weakens the action of that organ, which may be known by its lessening the force or the frequency of the pulse. And though it may seem surprising from the comparatively small quantity of blood which they abstract, yet practitioners will generally find the pulse reduced immediately on the removal of several leeches from the skin; and where this effect is not observable at that time, glasses exhausted of air should be applied over the punctures, until an evident reduction of the pulse succeeds.

When an acute inflammation of the brain or its appendages has taken place in typhns, I have usually bled from the arm first, and where that did not give decided relief, recommended the instant opening of the temporal artery as the best mean of local blood-letting; and the happiest effects have often followed these two methods used in quick succession, but especially when cold cloths have been freely applied to the head at the same time. Dr. Stoker introduces an interesting fact, on the authority of an experienced surgeon, " who, scarcely in any instance, when opening the temporal artery is prescribed for patients in fever, fails of taking as much blood as may be required; though during forty years, in which he has been surgeon to the County of Dublin Infirmary, he found the operation generally unsuccessful when directed in other diseases, either from the difficulty of puncturing the artery, or of getting a sufficient quantity of blood from any orifice that could

be made."* In almost every instance, where the brain is seriously affected in the open forms of typhus, the arteries of the head will be found much more distended and pulsating than natural; thus at once affording a strong evidence of vascular excitement, and a much greater facility to the topical detractions of blood.

In all acute inflammations, seated in vital parts, it is of great consequence neither to confide entirely in one powerful measure, nor in a combination of secondary means;—but rather to employ, from the first, the most approved antiphlogistic agents, successively or together, that their influence may be so exerted as to produce a complete change in the circulation of the blood, with the least possible loss of time. Most of the ancient physicians, and even Sydenham himself, trusted to venesection in the first instance, and the expedients which they afterwards used were comparatively inert:—but under this plan many cases might prove mortal, which would be readily arrested by a judicious conjunction of active remedies. The free exhibition of purgative medicines, with or without venesection, is one of the greatest improvements in modern medicine, as it respects the cure of acute fevers; and if, to the agency of those two means, that of calomel as an alternative be added, we give a summary of what ought to be attempted, not only in the inflammatory typhus, but in all the varieties of acute visceral inflammations. Nevertheless, how superior soever be the united efficacy of bleeding, purging, and mercurials, there is yet an application that should not be disregarded. Much contrariety of opinion seems still to prevail, relative to the propriety of using blisters in typhus. If my observations be correct, they should not be employed in the inflammatory variety, until evacuations have been premised; otherwise they will commonly excite a general irritation, which will more than counterbalance any local advantage derived from them. I have, however, generally seen them exceedingly serviceable, when applied to the

* See page 27 of Dr. Stoker's Treatise on Fever.

vicinity of the topical affection, soon after the employment of venesection and purgatives. It also deserves to be noticed, that they should hardly ever be recommended at a very late period, when the exhaustion is excessive, except where there is a tendency to coma, when they sometimes contribute to rouse the latent energies of life; on the whole, I conclude from what I have observed, that, when properly used, they are even more beneficial in typhus than in common fevers, especially when subdued degrees of inflammation or irritation exist in a vital part. When the spinal cord is inflamed, blisters are peculiarly serviceable, and they should be applied repeatedly over the vertebræ where most pain exists, and also to the pit of the stomach. If the patient be seen early, blood should always be drawn before their application, and purgatives continued steadily afterwards until the symptoms entirely abate; but as the constitutional powers sink very soon under inflammation of the spinal marrow, the lancet should either be withheld, or most guardedly used when the inflammation has continued for some days, and then indeed blisters (n) and purgatives will mostly be decidedly preferable.

My experience does not enable me to speak with perfect confidence concerning the general effects of the affusions of cold water, in the inflammatory typhus. It would be most unreasonable to expect that they should prove as highly efficacious in it as in the simplest form of the disease; yet their application in both probably requires to be regulated by the same principles. In the inflammatory typhus the heat is almost always above the natural standard, but the skin, particularly when the abdominal viscera are affected, is frequently moist, while there are distinct sensations of chilliness. A combination of such symptoms preclude the cold affusions, but not the warm bath, for it may be beneficially used after bleeding and purging, as it has a power of equalizing the circulation, by inducing a flow

(n) When the patient lies in a torpid state, blisters upon the extremities may frequently be applied to considerable advantage; but practitioners in this country do not generally rely much upon this remedy in typhus.

of blood towards the surface. In some cases of typhus, which were complicated with cerebritis, and in which the skin was very hot and dry, I have seen the cold affusions used with evident advantage, *before* bleeding and purging. But if any practitioner should flatter himself that they will, unassisted, subdue a fixed visceral inflammation in typhus, he will find his hopes utterly fallacious;—although, if applied when the surface is preternaturally hot and dry, and no sense of chilliness present, they will often lessen the intensity of the excitement, and thus add to the power of the subsequent depletion. I am persuaded, that they should seldom be employed in typhus *after* copious venesection, which reduces the vigour of the system too much to enable it to maintain a proper temperature under their application.

Most of the preceding remarks are intended to refer to typhus, combined with the acute species of inflammation. It is incumbent on me, however, to guard the practitioner against carrying depletion too far, even in the acute form of the inflammatory typhus. When a decided impression has been made upon the topical affection, we should desist from the employment of very active measures, and leave nature to exert her own energies towards restoration, or to second them by moderate treatment.

The acute inflammations of typhus sometimes originate from causes, which neither the physician nor the patient can control, and by the rapidity of their progress endanger life from the very onset. But this is not altogether the case with the sub-acute kinds of inflammation which, being the gradual results of the increased action of the heart and arteries, may often be prevented by timely care, and which, when actually formed, may proceed for some days, before they bring life into immediate hazard. The prevention of these latter affections may be best effected by frequently taking a cautious and comprehensive view of all the symptoms, so that if any part be threatened by an attack, it may be immediately warded off by local blood-letting, blisters, purgatives, or similar means.

Thus if there be too great a determination of blood to the brain, the patient should either be frequently placed in an easy chair, as Sydenham recommends, or the bed upon which he lies should be raised at least eight or ten inches at the top, by placing blocks of wood under the upper poles that he may rest on an inclined plane, with his head considerably elevated. And this simple precaution, with the free admission of cool air, cold applications to the head, the exclusion of light and noise, brisk aperients, and perhaps a few leeches to the temples, will frequently prevent an attack of inflammation. If the pleura, lungs, or mucous membrane of the trachea be predisposed to inflammation, leeching or cupping, a blister afterwards, small doses of antimonial medicines, and saline purgatives, will be amongst the best preventitives. If any of the abdominal viscera be threatened, the warm bath, large cathartic enema, a tolerably full dose of calomel, determined to the bowels by the sulphate of magnesia, and the abstraction of a few ounces of blood from the surface of the belly, will often obviate the necessity of having recourse to more active expedients. When the sub-acute inflammation really exists, it will be best overcome by a suitable perseverance in the antiphlogistic plan. One moderate bleeding from the arm will be generally necessary, after which local blood-letting, blistering, and purgatives, in combination with mercurials, for the most part will suffice to effect the cure. General venesection, or arteriotomy, may be recommended, with propriety at a much later period than it would be advisable in those cases of typhus which are complicated with the acute form of inflammation; for when the topical affection does not advance so quickly, the supervention of the stage of collapse is proportionably delayed. In an instance of this kind, which lately came under my inspection, the subject of it sickened on the eleventh day of the month, and gradually became worse, until the nineteenth, when my first visit was made. The patient was then extremely restless, shrunk on forcible pressure being made over the abdomen, which was somewhat fuller than nat-

ural, and he complained of an unquenchable thirst, with a constant burning heat at the stomach. Purgative medicines having been previously exhibited without arresting the complaint, I ordered a vein to be immediately opened at the arm, and, placing the patient in the erect position, allowed the blood to flow till it was stopped by approaching syncope. About ten ounces of blood only were drawn, the crassamentum of which became extremely cupped and buffy; yet the relief obtained was permanent, and the recovery rapid, through the assistance of a blister, and purgatives of calomel and jalap. In this case, blood was abstracted on the ninth day of the fever, with the most obvious utility; and on some occasions I have seen the temporal artery punctured to great advantage at as advanced a period, when the head was oppressed by a sub-acute inflammation of typhus. My experience does not enable me to limit the time at which the lancet may be employed in such affections, but the earlier the better, when the evidences of visceral inflammation are once sufficiently revealed. The case above is not brought forward to show that phlebotomy may generally be adviseable at so advanced a stage of the disorder, but merely to prove that it may sometimes be resorted to with advantage, even when the sub-acute inflammation has been allowed to proceed far without any decided interruption. Though some modern authors have recommended, as Langrish did in the last century, repeatedly small general venesecti^on^s several days later than in the instance reported, yet at such a time, I cannot but consider this practice as exceedingly dubious, and would myself prefer, in most cases, the occasional use of local bleeding. After a few of its diurnal revolutions, the stage of excitement begins to decline, and symptoms of universal collapse appear, during the existence of which it is extreme rashness to use general blood-letting. Indeed, the blood taken from a large vein is then frequently in a thin dissolved state, so that it remains a fluid gore, without coagulating; and whenever this is observed, it is the most certain proof that the operation has been done at an improper time. Unfortunately, the

physician is often consulted in febrile disorders when they have become all but desperate by their long continuance, and if he should attempt to save the patient by a daring measure, will generally have the mortification of seeing him sink rapidly after its employment.

For some years past, I have closely directed my attention to the effects of purgative medicines in hepatic, gastric, and other abdominal inflammations; and the result has been most satisfactory, particularly in the sub acute modifications, sometimes commencing with typhus, but far more frequently originating during the progress of the fever. In affections of this kind, it will very often be found, that the bowels have been constipated, or in an irregular state before or during the attack, which makes it necessary that they should be as speedily and thoroughly opened as possible; but on account of the irritability of the stomach, this cannot always be accomplished without difficulty. The contents of the lower part of the intestines should be first evacuated by large and repeated injections, containing at least a quart of fluid; but if twice that quantity, or even more can be administered, it will be still better, provided much feces be retained. The benefit resulting from large enemas, injected with a sufficient force, from a suitable syringe, or an ox's bladder properly fitted up, has not been rightly estimated; but, from repeated trials, I can recommend them as remedies truly worthy of notice in abdominal inflammations, often inducing copious motions in a very short time, and contributing to allay retching and vomiting, so that the medicines afterwards prescribed will not be rejected by the stomach. But their effects in general are not sufficient, and therefore aperients should be ordered immediately after their operation, to act upon the whole course of the canal. Under such circumstances, small doses of certain drugs, especially of calomel, are as liable to be rejected as full ones; and even when retained, they either do not operate at all, or only very defectively, and may do much more harm than good, by their immediate irritation, and by occasioning a loss of

time, every moment of which is precious in the beginning of such disorders. Full doses of purgatives, therefore, should be prescribed, which may not only remove the excrementitious matters from the bowels, but cause some evacuation of serum, and thereby produce all the advantage of a local abstraction of blood. Aperients should be most freely given in inflammations of the brain, and next in those of the abdomen, because they have a great power in deriving the fluids from these parts but particularly from the brain, so that the face of a person under the full operation of a purgative is usually pale. In inflammations of the brain, the saline purgatives upon the whole are the best, as they elicit a more copious discharge of serum, but they should generally be premised by calomel, for when the brain is inflamed the functions of the liver will usually be much disturbed at the same time. As copious and frequent purging has a tendency to diminish expectoration, it should hardly ever be enforced in thoracic inflammation, but more especially when the mucous membrane of the bronchia is the seat of inflammation; because very copious purging then not only checks the expectoration, but it most frequently prevents a perspirable state of the skin, which is always most desirable in affections of the bronchia. Yet the bowels should be moderately moved even in thoracic inflammations, particularly when the brain and liver are implicated, as often occurs in typhus; and in this combination of disease, the preparations of antimony sometimes have an excellent effect, when so managed as to arrest the heart's action, and to promote a certain degree of nausea, which is favourable for expectoration, as well as for a moist condition of the skin. When the trachea is inflamed, or when the bronchia are exceedingly loaded with phlegm, an antimonial emetic is sometimes extremely useful, both by expelling the collected mucous, and influencing the state of the whole vascular system, particularly the capillaries of the affected membrane, and those of the surface; but when the brain is embarrassed by any degree of inflammation in such cases, it will generally be necessary either to premise

general or local bleeding in the beginning, with the cautions before inculcated as to this combination of symptoms. In slight catarrhal affections, the temperature may be kept low in typhus, so long as the skin shall remain hot and dry; but when the tracheal or bronchial lining is at all seriously involved, the temperature of the apartment should be carefully regulated; for if it be too low, it will aggravate the tracheal or bronchial affection, as well by its direct stimulus on the part, as by operating unfavourably on the skin.

In the chronic species of the tracheal affection before described, which is now and then the attendant of typhus, early emetics of antimony, leeches and blisters successively applied near the larynx, laxatives, small doses of calomel and opium, and moderate ones of the balsam of copaiva, with an occasional tepid bath, free ventilation, and an abstemious regimen, are the best means. In the advanced stages, however, of this modification of the disease, I have not seen any thing available; although Mr. Croudace, whose case was formerly alluded to, recovered when extremely emaciated, on being removed to an airy situation in the country. The first articles which stayed upon his stomach were light hasty pudding, and a little milk, to which, and the influence of a pure atmosphere, he chiefly attributed his recovery.

From what has previously been said, it is scarcely necessary to add, that the strictly antiphlogistic regimen should be adopted in the inflammatory typhus, at least till the urgent symptoms be overcome. And even when the remission has been obtained, the practitioner should still direct a light, cooling diet; for it is well known, that when any part has once been inflamed, it is for some time afterwards very susceptible of the same disturbance. Moreover, in almost every case in which the system has been much depleted, a re-action of the heart and arteries takes place during convalescence, which may be readily pushed on, by too stimulating food, to re-produce fever and inflammation. For want of attending to this, not only open and palpable inflammations may be occasioned by errors

of diet, but insidious and concealed affections of the viscera or their membranes, which lead to dropsies in the cavities, or to actual disorganization. Other powerful auxiliaries are not needed when bleeding and purging rapidly remove visceral inflammation, and the typhus either at once ceases with the inflammation, or assumes a simple character, and requires a correspondent treatment, due allowances being always made for the previous evacuations, and the constitutional state of the patient. Because bleeding and purging are thus successful in certain cases, some would go so far as to contend, that in acute inflammation they invariably preclude other measures, with the exception of local bleeding and blistering; but it is well known that bleeding and purging sometimes entirely fail to arrest the inflammation, and at other times to leave subdued degrees of it, and are we then to suppose, that nothing efficient can be done in such instances? Where the impressions of bleeding and purging have not been decisive, it has been my common practice to prescribe calomel so as to ensure its specific as well as its aperient action; and when pain or irritation existed at the same time, I have almost always conjoined opium with it, except where the brain was obviously embarrassed.

It sometimes happens in the inflammatory typhus, as in other complaints of a similar character, that the inflammation relapses after it had been apparently subdued, and this is more especially the case, when the lungs are the seat of the inflammation. When the constitution is not exhausted, we ought not to be deterred from the use of the lancet on the recurrence of the urgent symptoms: and local bleeding, with blisters to the chest, will be particularly serviceable as secondary means, on account of the influence of small abstractions of blood by leeches over the heart's action, and of the free anastomoses of vessels between the external and internal parts of the thorax. It is a remarkable fact, that I have seldom seen relapses of inflammatory diseases where the bowels were kept regular, where the mouth was affected by mercury, and where the diet was antiphlogistic at the same time; and I cannot but believe,

from the consideration of many cases, that relapses would be much less frequent in vital inflammations, if these circumstances were more generally regarded.

Sometimes when local inflammation has been subdued in typhus, a state of great mental and bodily irritation succeeds in peculiarly susceptible habits. After a remission of two or three days, the skin again becomes pungently hot, the pulse quicker, the tongue drier; and, particularly towards the evening, there is a bright hectic flush upon the cheek, while the countenance has an expression of suffering. The patient is fretful, complains of fugitive pains in different parts of his body, and often sighs, as if he were laboring under some serious affliction. His sleeps are at first short and agitated, attended with mutterings or startings, and he awakes unrefreshed and anxious as before. In a short time he becomes watchful and delirious at nights, and has a rough, parched tongue, trembling hands, fiery eyes, and is impatient of light and noise. If opportunely employed, the warm bath, active purgatives, and small repeated opiates, are often remedies of great power in this secondary fever of irritation. The evening exacerbation is the best time for using the bath, in which the patient should be immersed for about fifteen minutes; and immediately after his removal to bed, he should take about twenty-five drops of the tincture of opium, and being thinly covered, ought to be kept in a still, dark chamber. If the first opiate should not induce rest, the same dose may be repeated in about six hours; one great object in the beginning of this disorder being to procure long and tranquil sleep, which is frequently the best restorative. If the skin should continue hot and dry throughout the day, the warm affusions may occasionally be applied, and fresh cool air liberally admitted. Milk is perhaps the best general diet, but when animal broths do not stimulate too much, they may also be given in moderate quantities. This kind of fever sometimes passes on to hectic, without the formation of matter any where, and sometimes imperceptibly leads to slow organic affections,

circumstances which much more commonly arise out of the inflammatory, than the simple variety of typhus.

Before concluding my remarks on the inflammatory typhus, I must strongly warn the speculative and the inexperienced from rashly concluding, that inflammation exists in every instance in which the head, chest, or belly are seemingly affected, since opinions deduced with precipitation from a few leading symptoms, may often be extremely deceptive. In a populous district, I have not unfrequently been called to typhous patients in a state of high delirium, with dry, burning skin, parched tongue, flushed face, and red eyes, covered with a load of bed-clothes, confined in close, heated chambers, and allowed the most improper beverage and diet. On freely ventilating the rooms, extinguishing the fires, removing the superfluous coverings, using the tepid assuagements, and ordering purgatives and an antiphlogistic regimen, I have seen a most salutary change induced in a short time, which has been rendered permanent by a perseverance in these very simple means. Other patients again have come under my care, who had been treated, in the first instance, much in the same way as those just noticed, some of whom were troubled with cough and oppression of the chest, and some, whose bowels were loaded from neglect, with uneasiness and tension of the belly;—but on prescribing a blister for the first, and a brisk purgative for the last mentioned, with the cooling regimen in both, all the disagreeable symptoms have given way, and recovery has speedily followed. None but those who have had opportunities of contrasting the cooling, antiphlogistic treatment, with the hot and stimulating, can duly appreciate the superiority of the former; or indeed be aware what a pleasing amendment may be frequently produced, in mismanaged patients, by the abstraction of heat, noise, and diffusible stimuli, and by the substitution of fresh cool air, sub acid drinks, a spare diet, and remedies which move the bowels, and lessen general excitement, and what are called local determinations.

There is one point of infinite importance in the treatment of

typhus which must be distinctly set forth in this place. It has been ingeniously contended, by some recent revivers of the doctrine of Erasistratus, that what is strictly termed fever is always the mere effect of inflammation. If this doctrine were practically true, it would follow, that we should persist in the use of those measures which are the most effectual in inflammation, so long as the fever shall remain, since, being the result of inflammation, it could only cease to exist with its cause; but however excellent and simple such a practice might appear in the closet, it would often be fatal at the bedside, if fully pursued in typhus, and in other febrile affections proceeding from specific contagions. Not long since I attended a case of typhus from the beginning, where the patient was twice bled to syncope for an inflammation of the brain, and a third time to syncope for a subsequent inflammation of the bowels; but though all appearances of inflammation subsided, the typhus itself maintained a determinate duration, the increased heat, quick pulse, and other symptoms of fever continuing for many days afterwards. Now had I taken, in this case, the continuance of the fever as a certain sign of the continuance of the inflammation, the patient, instead of having recovered, would have been inevitably lost, for after the third bleeding the prostration of strength was so great, that it required the utmost care in regulating the bowels properly on the one hand, and in allaying irritation on the other. Here bleeding was employed under the most favorable circumstances, in the beginning of the disease; it was carried far enough to subdue the inflammation, but much milder measures were afterwards necessary for the removal of the remaining typhus. Parallel cases have often fallen in my way, though I have seen many where the fever has been extinguished in the onset by these means; and therefore my own observation leads me alike to differ from those who assert that typhus never can be cut short, and those who pretend that it always may, in the commencement. But it is not so much in the very commencement as in the progress of typhus, that the theory of inflammation would be so pernicious in practice.

Indeed were this theory made an invariable rule of conduct to practitioners, its strict application would be destructive in most of those cases which have advanced into the intermediate and last stages. In such, though it may be of the first importance to remove an existing inflammation, yet if that inflammation be made the sole object of consideration, or if the evacuations be indiscriminately enforced day after day, under an idea that the presence of fever proves the presence of inflammation, if these things, I repeat, were done at these times, the issue would most frequently be mortal; for in the intermediate and advanced stages of genuine typhus the removal of inflammation will rarely remove the fever, and if in removing that inflammation the evacuations of blood be not then cautiously, induced, the patient will at once sink from their influence, or not have sufficient energy left to sustain him under the subsequent fever. Hence it is that a practitioner might by a bold treatment at the beginning either immediately stop the fever, or so moderate its force as to cause it to assume a mild and an obedient character; and hence, also it is, that the same plan might be so perilous in the intermediate stages, whereas one generally consisting in the discreet employment of local bleeding, purging, and blistering, would be so successful at that period of the inflammatory, while purging alone would be sufficient evacuation for the simple typhus. At present there are some ultra-phlebotomists, who think that bleeding is the first and the last remedy in typhus, concentrating almost the whole treatment into the reduction of some real or supposed inflammation; and it has therefore appeared to me necessary to caution the inexperienced respecting a measure, which must either be highly useful or highly injurious, according to the period and manner in which it is used. But the leading points in the inflammatory typhus having been discussed, the treatment of the congestive remains to be illustrated.

SECTION VI.

TREATMENT OF THE CONGESTIVE TYPHUS.

In both its simple and inflammatory varieties, typhus is unquestionably a disease of excitement; but this cannot be said of it under its congestive forms, in the most violent of which there is no intermediate stage of re-action; and even in the less urgent, the evidences of re-action are so partial, transient, or irregular, as hardly to deserve that denomination. Almost every fever has a stage of oppression, however brief it may be, but those cases only deserve to be called congestive, in which it is so great as either wholly to suppress the excitement, or to render it very partial and irregular. Sometimes the stage of oppression is apparently pretty strongly marked for a short time, and, gradually or suddenly receding, is followed by one of regular excitement, so that the disease afterwards runs its course under a simple or an inflammatory character, but more frequently under the latter. The following observations, however, are not designed for such cases, though it may be noticed, that their first stage requires the same principles of cure as are suitable to the strictly congestive fever, and that the subsequent stages must be treated according to the rules laid down for the simple and inflammatory typhus.

If the congestive variety of typhus does not comprehend the different characters, of what some authors have been pleased to call the low malignant, contagious fever of this country, I profess myself incompetent to understand their meaning; unless indeed their descriptions be considered as likewise applicable to the last stages of the simple and inflammatory typhus, in which malignant symptoms are often present when those forms of the disease had not been impeded in their progress.

Some bad cases have already been given of the congestive typhus, the terminations of which, under the common modes of treatment, were fatal; and one has been particularly noticed, which ended successfully by very early bleeding, purging, and the warm bath. This brief statement nearly accords with the general result of my observations in regard to such examples of contagious fever; since whenever treated, from the beginning, solely by palliatives and cordials, the event has been mortal, whereas a great many have proved favourable in which a different line of practice was pursued; although it must not be concealed, that the most judicious plan will not always succeed in the concentrated attacks of the congestive typhus which, like a resistless apoplexy, sometimes set every remedy at defiance. But if failures of this sort show the occasional inefficiency of depletion, they certainly do not disprove its general utility, since there are cases of other acute diseases, wherein the best measures are now and then wholly unavailable; as might be instanced in carditis, pneumonia, and similar affections, in which no person has the hardihood to dispute the general advantage of early evacuations.

In the severest cases of the congestive typhus, there is from the beginning great apparent debility, which speculative men have considered as real, and which they have attributed to the direct influence of the contagion as a sedative, without ever reflecting that it chiefly depends upon the changes which take place in the circulation; and that it is no more to be accounted positive exhaustion, than the loss of muscular power, which precedes and accompanies the threatening of genuine apoplexy to which, in fact, this modification of typhus has often a most forcible resemblance. In general it comes on very suddenly; and what magical change, it may be asked, has been wrought in the system in the period of a few hours, that the subject, who the moment before his sickening, might have been largely bled without the least prejudice, should now, that he is actually indisposed, be all at once pronounced incapable of bearing the smallest abstraction of blood? To permit ourselves to be in-

fluenced by preconceived theories and puerile fears, on such emergencies, is in effect to conjure up ideal phantoms which paralyze our energies when they are most urgently required. Abstract but the idea of contagion from cases of this nature and we should be prepared to meet them boldly, as we would any other alarming disease of congestion, (o) from the mere impression of the prominent symptoms. And why in our maturer deliberations should the assurance, that the morbid phenomena have proceeded from contagion, prevent us from using the remedies which for similar symptoms, arising from a different cause, we should not hesitate an instant to employ? In a rational practice, it is not surely necessary always to form our indications of cure from the consideration of the primary cause of any disorder: in general, it is only to the effects produced on the various parts of the system that our remedial agents ought to be applied; and wherever the effects are nearly or precisely similar in two acute diseases, it may be held as an axiom that the principles of treatment ought also to be nearly or precisely similar, though the one originated in cold, and the other in contagion, or in any other opposite causes. It is the very error of the schools to avoid early depletion, on account of supposed exhaustion; and it is truly surprising upon what slender grounds men of sagacity, and even of great experience, have rejected venesection in congestive fever. The late Dr John Clark of Newcastle, for example, who was one of the best practical physicians of his day, speaks decidedly against it, merely from an imperfect trial of it in two or three cases; and he seems never to have had the courage to give it an impartial trial afterwards.

It has already been shown, that there can be little or no certainty in the treatment of the simple and inflammatory typhus, without marking their various stages; and the same may be affirmed, with perhaps still greater force, of the worst forms

(o) It will be perceived that our author does not let his belief in the contagious nature of the disease interfere in any manner with the treatment—a circumstance very creditable to him.

of the congestive typhus, in which the first stage of oppression is often exceedingly short; and as it affords the only period in which medical assistance is likely to be available, it is to the last degree important to distinguish it from the stage of universal collapse. Acute fevers, of whatever kind, may be practically considered, in their commencement, as merely disordered states of the circulation generally and locally, which may be most frequently corrected by the opportune application of proper means; but if in the more urgent examples these disordered states be permitted to exist for a short time, they produce both derangement of function and structure, which no human power can repair. These remarks are especially illustrative of the worst forms of congestive fever, in which the stage of oppression, as it is not followed by an intermediate one of excitement, passes directly into that of collapse,—disordered action being most commonly succeeded by organic derangement.

It is in the first stage only of the highly congestive typhus, that general blood-letting is admissible with a view of relieving the local congestions, and of restoring the natural balance of the circulation. The practitioner must not fix upon a determinate quantity of blood to be drawn, but rather be guided by the effects produced. Sometimes a few ounces will be quite sufficient, and at other times, ten, sixteen, twenty, or even more at one time may be requisite to relieve the topical engorgements, and put the general circulation into proper play. The action of the heart is often so much overpowered in the first instance, that the blood merely trickles, or rather oozes, from the punctured vessel for a considerable time, being much darker and thicker than natural. Yet when a few ounces have been drawn, it usually flows with freedom, and becomes finally of a brighter colour. Occasionally, I have stood over a patient nearly half an hour before a stream of blood could be obtained from a vein, but at last it gushed out in a full current, and was not so easily restrained as in ordinary cases. Many a life might be lost by binding up the arm too hastily, and therefore the operator should persevere, until he

knows whether enough blood can be obtained. As the engorgements are in a great measure venous in the congestive typhus, my common practice for a long time was, to order the jugular or brachial veins to be opened, conceiving that blood abstracted from one of them would sooner relieve the system than from an artery. But finding in some cases that a sufficiency of blood could not be obtained from the veins, I was induced to order the opening of the temporal artery; and where the operation was skilfully done not only enough blood was procured, but a more immediate change appeared to be effected in the whole vascular system, than by venesection simply. Whenever therefore blood cannot be obtained from the veins with a freedom or celerity commensurate to the urgency of the symptoms, the temporal artery should be opened. And though my experience has not yet enabled me to determine whether arteriotomy be *generally* more efficacious than venesection in congestive cases, yet whenever the head is greatly affected, which often happens, the vessel just mentioned should always be punctured, as by so doing I have frequently seen patients rescued from impending death.

In great congestions, the pulse generally rises under or immediately after blood-letting, but sometimes it continues oppressed, and even weaker than before, and then bleeding ought not to be further employed; for as the rising of the pulse under bleeding in congestive fever in a certain indication of its propriety, so its sinking is as certain an indication of its impropriety, and therefore we have a criterion to guide us in the operation. When both the pulse and the general circulation become manifestly freer, with a warm moist skin, tepid diluents should be the only beverage recommended; yet when it still remains oppressed, and the tide of the circulation does not return to the surface, and more especially if blood has been freely drawn, some wine with warm water should be occasionally exhibited, and the patient speedily immersed in a bath, strongly impregnated with salt, and at least about the temperature of 100° of Fahrenheit's scale. He should remain in the bath till

his skin become warm, and on being removed, it should be well rubbed all over with hot flannels, and he ought then to be laid in an aired bed, with bottles of warm water at his feet.

Indeed if the bath can be prepared sufficiently soon, it is far best to immerse the patient in it first, and either to bleed him while he remains in it, or immediately after he leaves it. In some very severe cases, I have found it impossible to get enough blood until a warm bath had been premised, so oppressed was the general circulation before its employment. But where the bath cannot be obtained in time, warm stimulating unctuous must be used instead, warm blankets applied to the surface, and warm drinks administered. The ancients, as the writings of Hippocrates and Celsus testify, paid considerable more attention than the moderns to the use of the bath and friction of the skin in febrile disorders, though a recent author of ingenuity has justly dwelt upon their importance.* It has often struck me, that the vapour bath would be an excellent remedy in such cases, combined with the friction of some warm or stimulating liquid, to promote perspiration. It is much to be regretted, that in common practice a great deal of valuable time is often lost before the common bath can be made ready, but a steam one might be soon obtained by a very simple apparatus, which ought to be kept in every house. In all

* See *Reflections on Fever*. By Robert Calvert, M. D. London printed for J. Callow, 1815. Though the principal part of my essay on typhus had been written long before the publication of the above work, I did not like to pass it unnoticed; because, independently of all theory, it contains some most judicious remarks on the treatment of fevers, and especially on the utility of restoring the natural functions of the skin. The author's pathological views of fever will be found in many respects different from mine, even his principal one, which relates to the loss of balance in the circulation. He considers that this loss of balance may be occasional in two different ways, viz. on the side of depletion, when the egress exceeds the ingress; or on the side of fulness, when the ingress exceeds the egress; whereas I have simply placed the loss of balance either in a morbid fulness of the veins or arteries locally, or in a general change of capacity, relatively, between the venous and arterial systems.

congestive diseases, the deficiency or irregularity of heat on the surface is among the primary and most important phenomena, and if the skin can be restored every where to its natural warmth and an universal perspiration be excited, recovery will most frequently succeed. In the first stage of the most violent attacks of febrile affections, there are strong indications of internal accumulations of venous blood, which may often be removed or mitigated by restoring a due proportion of caloric to the surface.

Though bleeding and the warm bath are means of the first efficacy, they should be followed by others with as little loss of time as possible. The bowels ought immediately to be evacuated by very large stimulating enemata, and then by full doses of calomel and jalap, whilst a large blister should be applied over the region of the stomach or liver. Well knowing that the bowels are commonly very torpid, and that every moment is incalculably valuable in such rapid cases, I have generally given a scruple of calomel at first, repeating much smaller doses three or four times on the first day of the attack, with the medicines above named; and when the bowels have resisted their united influence, saline purgatives have been added, that no time might be lost. The great advantages of this vigorous practice are, first, that you commonly obtain free evacuations in a short time, which could hardly be obtained at all under the ordinary mode, or at least but with considerable delay; and, secondly, that you most frequently obtain the alternative operation of the calomel within the first or second day, which is a circumstance highly to be desired. For a long time I overlooked one of the principal effects of calomel in congestive fevers; and at last it was only forced upon me, by patients almost invariably recovering with rapidity, when ptyalism was excited.* The power

* In what has been called the malignant pestilential fever at Grenada Dr. Chisholm gave mercury many years ago; and from an able paper which he recently published, in No. 51 of the Edinburgh Medical Journal, he now appears to think, that it was of a decidedly congestive character, such as I have described.

which calomel has in equalizing the circulation is no where more conspicuously displayed than in diseases of a congestive character. Before its exhibition the skin will be cold, wan, and shrunk, the pulse feeble or oppressed, and the whole system apparently relaxed: but as soon as the mouth is made sore from its influence, the skin becomes warm, reddish, and distended with the vigorous circulation, while the pulse is full, soft, and strong, and the general energy in a great measure restored. Anxious to procure the purgative, as well as the specific operation of calomel on the very first attack of the congestive typhus, I have seldom combined opium with it until an action has been established on the intestines, after which small doses of opium, antimony, and camphor, may be added with very considerable benefit. The liver is intimately concerned in the pathology of congestive fevers, and for the first day or two the alvine evacuations will commonly be found either as dark as tar, or whitish and slimy; but they speedily become natural when ptyalism takes place, and a copious secretion of bile almost invariably augurs a favourable issue. When the tenderness of the gums and the peculiar fetor of the breath mark the development of the mercurial action, the calomel should be either entirely omitted, or only given in such small quantities, as to ensure the moderate continuance of the ptyalism. For though the experience of every succeeding year tends more firmly to establish my faith in the efficacy of large doses of calomel in highly congestive diseases, yet having once fairly made the desired impression, they ought not to be repeated, such an extraordinary practice only being requisite, or even justifiable, during the urgency of extraordinary cases.

From what has been advanced, it will be evident, that bleeding, the tepid bath, frictions of the skin, calomel with purgatives and blisters, are the chief expedients in the highly congestive typhus; and even these must not be expected to succeed, unless very early and decisively employed. Indeed if a very powerful impression be not made within the first twenty-four hours, little good in general can afterwards be effected;

so rapidly does the stage of collapse supervene, when the visceral congestions are not diminished soon after the attack. It is perhaps to practitioners having so frequently lost or neglected the first brief stage, that the extreme fatality of the highly congestive typhus ought to be attributed rather than to its irremediable nature; although, as before hinted, it will sometimes baffle the best measures, however promptly and judiciously employed. For the most part venesection can only be beneficial at the very commencement of the most severe examples of this description; yet I lately attended a case in which it was twice had recourse to with great advantage, on the fifth day of the attack. The young man had labored under a load of his head from the first seizure, and was stupid as if half asleep with a cool skin, and a slow, impeded, and irregular pulse, which became quicker, free, and regular after the first operation; and the second so much alleviated the symptoms, that only two or three brisk purgatives of calomel were afterwards necessary. It will sometimes happen, on account of the extreme oppression of the circulation, that only two, three, or four ounces can be procured at the first bleeding; and although this small quantity may now and then relieve the congestions, and bring about the re-action, yet it will most frequently produce little benefit; and therefore a second operation may be required, which should generally be performed at no great distance of time from the first. A moderate and early abstraction of blood is exceedingly well suited for such examples of fever, but in most cases large repeated venesections would only defeat the purpose in view, by sinking the powers of the general system so far, as to render them incapable of producing that degree of re-action requisite to restore the natural balance of the circulation. Venesection should be rarely carried to syncope, since that state not unfrequently prevents the developement of arterial re-action in cases of this nature, and thus contributes to sustain the venous congestions. When a proper portion of the vital fluid has been abstracted, so as to relieve the immediate pressure of the congestions on the vital

organs, the remainder of the cure must be accomplished by the measures already recommended. There are, however, some cases in which venesection must be used with great care, as, for instance, when aged or infirm subjects are attacked with the congestive typhus: in them brisk purgatives, the rapid saturation of the system with calomel, the warm bath, and blisters will sometimes be found the best remedies; yet when the head and the liver are at the same time seriously affected, it may be requisite to draw blood, in order to give the patient a chance for life.

In the congestive typhus, especially in the worst cases, the moderate exhibition of diffusible stimulants is sometimes really necessary; not only to support the *vis vitæ* immediately under depletion, but also to contribute, after its employment, to rouse the heart and arteries, that the natural balance of the circulation may be finally restored. Indeed early depletion itself is to be considered as a stimulus, since it diminishes or removes those congestions which oppress the vital functions and thereby it tends to produce an uniform and general excitement. When sufficient evacuations have been made, certain degrees of venous congestion may remain partly from want of power in the heart and arteries; and the judicious administration of stimulants may then contribute to communicate that power, and thus in the end to equalize the circulation. Yet diffusible stimuli, without depletion, are rarely beneficial, nay generally dangerous, and on this account should not be administered alone in such cases as have been described, and even when they are employed with or after depletion, their exhibition requires great care. It may be laid down as a general rule, that it is safer to give them with too sparing, than with too liberal a hand, for that recent case of fever must be desperate indeed, the cure of which is to be trusted to them singly. When the first great oppression of the most aggravated examples is overcome, they may either terminate in a complete resolution, or assume some other character. If the remedies recommended be efficient, they produce a condition widely different from the

original one of congestion: in short, they establish a new condition in the system, which may at once lead to convalescence, or be followed by a simple or an inflammatory excitement of the heart and arteries. Now, if stimulants be administered too freely during or after the employment of depletion, they may excite the heart and arteries too much, and produce either a simple fever, or one complicated with inflammation; the last of which is of the most frequent occurrence, probably because the parts which had before been preternaturally distended with venous congestion, are very readily roused into inflammation by a strong arterial re-action. In many cases of eongestive fever there is a danger of one or other of the above states supervening; but if slight ptyalism be early produced, and purgatives continued with tolerable freedom for a few days after its appearance they will generally be prevented, or at least rendered so moderate as to be almost always remediable. When the simple or inflammatory forms of fever supervene the eongestive, they must be, respectively, treated upon principles similar to those laid down for the simple and inflammatory-typhus; excepting that evacuations of all kinds must be more sparingly employed, by reason of the reduced state of the system from the previous depletion.

If venesection be inadmissible in the last stage of the inflammatory typhus, it is certain destruction when the general relaxation has occurred in the congestive. At that period, the loss only of a few ounces of blood will always prove speedily fatal. There is towards the close of most acute fevers of severity, some tendency to a change in the constitution of the fluids; and this may often be witnessed so early as the second day, in the most malignant cases of the congestive typhus. The blood becomes black and dissolved, so that when drawn it never coagulates, but continues a fluid gore in the vessel. Any approaches to this state of the blood, such as inky petechiae, or dark oozings from the mouth and nostrils, with a weak, quick, thready pulse, always prove that the stage of collapse is at hand; and should make the professional attendant pause be-

fore he advances a step forward in the treatment. Depletion is then entirely out of the question, and the judicious use of diffusible stimuli, calomel and opium, together with blisters, and free ventilation, are the only means to which he can prudently resort at such a momentous crisis. Repeated doses of opium will sometimes save life, when the universal collapse seemed all but hopeless.

Sometimes in the last stage of the highly congestive typhus, an appearance of re-action takes place, a sort of agitated struggle in the system, from the wreck previously induced in some vital organ. The greater part of the surface becomes of a warm glow, and is covered with perspiration; the pulse rises, and frequently on a slight pressure, feels full, bounding, and strong; but it is only a false semblance of fulness and strength, such as may be often observed towards the close of apoplexy; and therefore it should not deceive the practitioner, since the smallest bleeding would soon sink it entirely. Some have ingeniously contended for the use of bleeding in the last stage of congestive fevers, on the plea that it cannot be injurious, since there is a tendency in the case to be certainly mortal. In general the chances of recovery are then assuredly next to nothing, for if gangrene does not always exist, the visceral congestions still remain, and in combination, too, with an universal collapse. So far therefore, from the general venesection being the only mean likely to do good under such circumstances, it is of all others the most inadmissible, since it is fitted wholly to extinguish whatever feeble glimmerings of hope might remain. And who, on the faintest expectation of saving life, would rashly venture upon a step which, if it failed, must be inevitably and almost immediately fatal?

The milder forms of the congestive typhus, where the viscera are not so much engorged, and some degree of re-action takes place in the beginning, require a similar, though a less powerful, plan than that just delivered. In them, I have frequently used moderate venesection, at an early period, with great ben-

efit, but in several cases have not found it necessary. Full doses of calomel, with moderate ones of jalap and antimonial powder, so that they may act freely on the bowels, with the assistance of the tepid bath and blisters, will sometimes effect the cure; but the calomel should be exhibited till the mouth become effected, and to ensure that and a warm perspiration it should always be combined with small doses of opium, when evacuations have been carried far enough. In tolerably strong subjects, it will generally be better to use one moderate bleeding before the purgatives, alteratives, blisters, and the bath:—but in old or enervated habits, the lancet should either be laid aside, or employed very cautiously, for though one small bleeding may often be advantageous at the commencement, the operation can seldom be repeated with safety, and is most certainly prejudicial at an advanced period. Neither do aged nor very infirm persons bear purgatives by any means so well as the young and vigorous, and therefore in them they should not be so long or so vigorously administered.

After evacuations by bleeding or purging, an antimonial emetic often tends to produce a favourable change in the whole circulation, and has a determinate effect on the extreme vessels, a general warmth and moisture being produced upon the skin, which before its employment had been in a very morbid and variable state. It will sometimes be requisite to administer cordials, either during or after the evacuations, in order to maintain the strength, and to equalize the circulation. Yet the precautions which have been so frequently repeated concerning them must not be forgotten here; for they ought not to be considered as an essential remedy in fever, but simply as a mean to obviate some of its consequences—to give a temporary tone to the heart and arteries, or to counteract the debilitating effects of necessary evacuations. Among the preparations in our pharmacopœias, one of the best diffusible stimulants is the carbonate of ammonia, which may frequently be prescribed with advantage in congestive fevers, when deple-

tion has been premised; its excitement is neither excessive nor long continued, and, if given in moderate and repeated doses, it has considerable influence in determining to the surface.

It is more particularly within the first five days, that the attacks of the milder congestive typhus may be so subdued, as to ensure a favourable issue: but if that term be passed over, without the adoption of proper measures, little good, for the most part, can be done by any plan; though the bold exhibition of calomel, with small doses of opium, must then be the sheet at anchor of our expectations. When the irregularities of the circulation proceed unmolested for some days, they are too frequently beyond the control of every medical agent, because they are then often connected with an irrecoverable collapse, or with actual lesion of structure.

In the milder, as in the severe examples of the congestive typhus, the bowels should almost always be kept in a soluble state, some days after pyrexia has been excited. If laxatives be neglected, even when there is an appearance of convalescence, a relapse is often the consequence, which, however, may almost always be overcome by procuring free motions. Nevertheless, whenever there are indications of any thing like a general collapse, be they ever so slight, evacuants of all sorts should be suspended; for they are frequently most pernicious in the last stage of fevers, and I believe that many cases are lost from practitioners persevering in the use of purgatives at such a period.

It has been suggested to me, by some experienced friends, that there are certain cases of what I have called the congestive fever, to which the depletory practice is not applicable in the first instance; and these are, when the first attack is so exceedingly concentrated as completely to oppress the heart's action, and to sink the animal heat till the skin feel quite cold. A condition of this kind sometimes supervenes external injuries, as when a man has fallen from a height, or when a child has been most severely burnt: all good practical surgeons

agree, that it is most proper to support the *vis vitæ* at first by cordials; and probably a similar plan would be best till the primary shock be over, when an extreme loss of heat has arisen from contagion or any other cause. In the Essay on the Puerperal Fever, I have pointed out a disease of that description, and towards the close of this, shall have occasion to allude to another, where the cordial treatment appears for a time to be necessary. But when there is obviously a load of venous blood about a vital organ, where the heat is not sunk too low, and where the subject of the attack has been previously sound in constitution, the evacuant treatment is in general strongly indicated; but the practitioner must never forget, that those measures also which tend to restore the temperature to a natural state are amongst the most important and efficacious, in every modification of congestive disease. Yet the nature and treatment of all congestive affections still require further investigation, and having called the attention of the faculty to them, I trust that these imperfect hints will be followed by substantial improvements. Though neither the galvanic nor electric fluids have hitherto been applied to much purpose, yet might they not be of some utility in those acute complaints where the heart is so much oppressed, and the heat so much diminished, and where one might naturally suppose that there was a deficiency of electric matter in the body? But on the other hand, as an excess of it would seem to exist in diseases of excitement, if this should be discovered to be a cause of supporting that excitement, would its partial abstraction from the body be beneficial in affections where the action of the heart and arterics is increased?

Before quitting the consideration of the congestive typhus, I must caution practitioners to be most minute in their inquiries, whenever consulted by patients, complaining of the first obscure indications of fever; because by a hasty or superficial view they may be led to give the most erroneous opinion, and to pursue the most injudicious practice. Some infected persons are from the beginning so listless and indifferent, that they

may make little or no complaint even when alarming congestions exist; and, if neglected on the first day, may die unexpectedly on the next, from an overwhelming oppression of some of the vital organs. Others, again, appear pale and languid, and yet will hardly allow themselves to be indisposed; but if two or three days should elapse without the adoption of any decisive measures, they also may become alarmingly worse, and fall victims to the irregular form of congestive typhus.

The foregoing principles and practices were chiefly deduced from an observation of typhus in a country district. It may on this account be proper to inquire, whether they be applicable to the disease as it is presented in the metropolis. Unquestionably the external signs and the internal pathology of typhus are similar in London and in the country, its simple, inflammatory, and congestive varieties having all passed under my review in the Fever Institution; nor is there any class of people, so far as my information has yet extended, requiring any very remarkable modification in the treatment, except one, which shall therefore be particularly noticed. The people alluded to are of the lowest order in London, who live huddled together in extremely small, dirty, and ill ventilated apartments, who are at best badly and often irregularly fed, who are not so cleanly in their persons, or so well clothed and warmed as the poor in the country, whose moral habits are not so temperate, and whose minds are not so settled, from their employment being more interrupted and precarious, and from they themselves being much more removed from the direct intercourse and influence of their superiors. From these and other causes it results, that there is less muscular tone, and more nervous irritation among them than the poor of the country; so that when attacked with contagious typhus the de-

pression of strength is greater, and the power of bearing depletion, particularly by the lancet, diminished in a proportionable degree; yet still this difference does not militate against the general principles of evaenation, since it requires, not that they should be abandoned, but merely modified to a certain degree in their application.

In the simple typhus, I seldom saw the stage of excitement commence with a soft, fluent, compressible pulse among the poor in the country; but among the above class in London, such a pulse is not uncommon at that period, even in children, whose weak constitutions mostly correspond to that of their parents, from having been cast in the same mould of circumstances. In these examples, however, so far from stimulants being indicated, they are as pernicious as poisons in this stage, in the beginning of which a few moderate doses of calomel with rhubarb daily determined to the bowels by castor oil, or the sulphate of magnesia are generally best; and the intestines having thus been effectually unloaded for some days, during the future progress of this stage hardly any purgative will be preferable to castor oil; though from the first, the antiphlogistic regimen must be enforced, together with absolute rest, tepid ablutions, sub-acid drinks, strict cleanliness, and proper ventilation. If any threatenings of inflammation should arise during the excitement, it may generally be warded off by the prompt application of leeches and a blister, measures then, with a steady perseverance in purgatives, almost invariably well sustained and highly serviceable; but where the brain is the part endangered, shaving the hairy scalp, and using cold applications to the head are auxiliary means of considerable efficacy, and in suspicious cases should therefore hardly ever be omitted. Under the purgative and cooling plan, however, I have known many instances terminate without any signs of genuine inflammation, and though these have been most common in young, yet some have occurred in old subjects. In the young, the general excitement runs higher, yet as their internal organs are commonly the soundest before the

attack, so they are oftener free from visceral inflammation in iiiiopathic fevers such as typhus; and, on the other hand, in the old, from the frequently torpid state of the heart and nervous system, the general excitement is sometimes exceedingly moderate, which affords them a fair chance of escaping inflammation, when the vital organs had been previously entire. Though the poor of the metropolis bear daily purging better than any other species of evacuation, yet towards the decline of the stage of excitement, purgatives must be much more cautiously applied than in the beginning, except where large accumulations of morbid feces had taken place, from previous neglect of the bowels, and then one or two brisk doses are necessary, after which milder aperients should be employed. Indeed, when patients have been brought into the Fever Institution at rather an advanced period of the stage of excitement, I have found it a point of the first importance to ascertain whether or not the bowels were loaded with scybala; for if scybala had not been retained, mild laxatives have then generally answered the best purpose, whereas if scybala had been retained with much morbid secretion, calomel and rhubarb, or repeated doses of castor oil, have been necessary to dislodge them, and to free the patient from their pernicious irritation. In doubtful cases, where general exhaustion is considerable from the long continued excitement, and where the evacuations are loose and muddy without any portion of scybala, it is often a good expedient to inject a tolerably large enema, which will commonly show, by what is passed, whether much scybala be retained in the colon; since if some hard, dark, offensive pieces be evacuated amidst the fluid matter, it may safely be presumed, that considerably more are accumulated in the large intestines. But if possible a previous history should be obtained respecting the quantity of food taken, and the daily state of the alvine evacuations, from which, and from the condition of the tongue and breath, a tolerably correct notion may be formed, whether laxatives or purgatives be necessary. When a considerable quantity even of liquids have been taken,

when the bowels have been but scantily opened, and, when the tongue is foul and the breath offensive, most certainly the bowels will be so loaded as to require a few brisk purges; and, on the contrary, at an advanced period of the stage of excitement, when little food has been taken, when the bowels have been daily evacuated, and when the tongue is not foul, and the breath not offensive, little else than the usual secretions will be contained in the intestines, requiring the use merely of gentle aperients. It seems to have been taken for granted, that all the secretions are diminished in fever, but though this may be the case with some, it is not assuredly so with all of them; at least attentive observation will convince any one, that the intestinal secretions are increased, and this is a circumstance which should always be taken into account in the treatment of typhus, as their retention, while morbid, often keeps up more or less irritation during the stage of excitement.

In the peculiar subjects of the metropolis so particularly noticed above, the stage of collapse in the simple typhus is accompanied by a far more profound relaxation of the whole system than among the poor of the country: but though this relaxation extends to every muscular and common fibre, it seems to be greatest in the heart, arteries, and veins, so that for want of power in the first, and want of tonicity in the two last, the circulation is carried on with difficulty; the blood almost seeming to stagnate in the capillaries, and to be especially retarded in its return by the veins, which often gives the skin a plum-coloured or purplish shade. The artery at the wrist has a most remarkable feel. In pressing the fingers moderately upon it, the pulse is extinguished, but on making the pressure slighter, it conveys an idea as if the blood were flowing along an uncommonly soft silken channel; while its feebly renewed strokes, or rather undulations, at once convince the examiner, that the heart has sustained an immense loss of natural force, whether the pulse be frequent or slow. In fine, there is a combination of peculiar softness and weakness in this pulse which cannot be forgotten by those who have once felt it carefully,

and it more nearly resembles that which occurs immediately on a patient's recovery from syncope, occasioned by a large loss of blood, than any other with which I am acquainted. It has been again and again repeated on the authority of Celsus, who is in general a mere echo of the ancients, that the pulse is a most fallacious thing. Yet as I hardly know a better guide for the propriety of performing venesection, than a tense, jerky, and resisting pulse, so I do not know any single symptom more decisive against bleeding than the peculiar pulse in question; for in the last stage I have never known the lancet used, where it was present, nay, nor local bleeding by leeches, without highly dangerous or mortal results; and therefore warn others against those sweeping assertions of the day which would have us to disregard the state of the pulse, and to bleed whenever the brain is embarrassed. This caution, too, is the more necessary, since the peculiar pulse above described, is often found, in the last stage, with delirium, tendency to stupor, injected eyes, and other signs, which, on a first impression, might be mistaken for inflammation of the brain, in the simple typhus; but these, in the last stage of this form, are consequences of a remora of blood in the capillary system from sheer exhaustion, as the relaxed soft skin, the prostration of voluntary power, the enervated expression of the countenance, the hollow eyes, the supine, sunk position, the diminution of the heart's action, and the feeble respiration, might all indicate in such examples. This peculiarly soft and weak pulse is quick in some cases, in others slow, and we judge of its being really dangerous or the contrary by the concomitant symptoms. When no bad concomitant symptoms exist, it is nearly always an indication of that universal relaxation which follows the excitement as its effect, which is proportionate to the degree of that excitement, and which will gradually disappear under a light nutritious diet; but when bad concomitant symptoms do exist with this pulse, the condition of which it is the sign greatly magnifies the danger, yet even then a mild treatment may, though an active one never can, save the exhausted patient. In this

state, moderately good animal broths are mostly useful in small and repeated quantities throughout the day and night, so as to keep up the strength without at all oppressing the stomach; and in several instances a certain allowance of wine does good, but at first it should be given in teaspooonfuls at a time diluted with water, and continued or withdrawn according to its favorable or unfavorable influence. It is remarkable what benefit wine occasionally produces when it lessens the frequency and increases the force of the pulse, allays thirst, quiets an agitated respiration, and induces rest in the last stage of typhus: but it is also remarkable what mischief a full dose of wine sometimes occasions at that period, the face becoming flushed after it, the breathing laborious, the pulse burried to a countless rapidity and the general irritation and exhaustion greatly increased; and as we cannot *a priori* anticipate its precise effect, of course it is necessary that we should be as circumspect as possible in its first administration. Those purgative medicines which are liable to produce full and frequent effects must be avoided where this peculiar pulse is found, in short whatever might tend to exhaust the heart, or to irritate the nervous system, as a slight shock to either might be mortal. One part of the practice of physic in acute diseases, especially in fevers, consists in the decisive employment of active agents in the beginning: another part is to select and apply intermediate means in the intermediate stages, that a due relation between the treatment and the disease may still be observed; and the third part is either to forbear altogether, or to do little, in the very last stage, in which powerful measures are generally the most destructive which can be used. When the stage of collapse is marked by such an exceeding relaxation as has been mentioned, upon the whole enemeta are frequently the most proper, as they dislodge the feces in the lower intestines with the least possible exhaustion. It appears from Celsus, that both the Greeks and Romans ordered enemeta in fevers much more frequently than we do at present; and the practice, it would seem, has been continued on some parts of the continent from the influence of

their authority, not to mention that Sydenham often employed enemeta day after day in fevers, much in the manner of the ancients. On many occasions, we should not hesitate to return to this as an ordinary practice, because experience proves it to be more expedient than purgatives by the stomach, where great debility exists in the last stage. Indeed it is often a very round about way of procuring an evacuation to pass a purgative along the whole tract of the intestines when the matter to be dislodged is only in the lower portion, and when it can be more safely and promptly accomplished by an injection. Except when some very irritating substance is added, glysters operate principally by the stimulus of distention; and tepid water therefore will commonly snit as well as any thing else, the quantity being varied as circumstances may require. A small quantity of fluid thrown into the rectum will often fail to operate, whereas a large quantity will rarely fail to procure a full motion. Where the bowels were so much loaded as to need something more than enemeta, and where the collapse was formidable in such habits as have been described, I have most frequently prescribed castor oil, with appropriate support sometimes in the dose of half an ounce repeated as occasion might require, and sometimes have found a drachm or two sufficient, when properly aided by enemeta.

Perhaps in the progress of medical science something may be found to lessen the fatality of certain modifications of fever in the most advanced stage. At that period, as just hinted, the chief cause of death sometimes appears to consist in a collapse of the heart, and a loss of tone in the vascular system, by which the capillaries at last are left injected, and the larger veins loaded with very dark blood; so that, in reality, whatever some men have pretended, none of the genuine signs of inflammation are discoverable after death, such as an effusion of coagulable lymph, adhesion of parts, suppuration, or gangrene. In this ultimate state of relaxation, for such, in the present state of our knowledge, it must be accounted, would the application of galvanic fluid, or the inhalation of oxygenated air be

useful, the one by communicating energy to the nervous system, and the other by renovating the vitiated blood ? This question is merely put to call the professional attention to some points which have not yet been sufficiently considered. The notable relaxation alluded to is sometimes gradually removed by the cautious administration of wine, æther, and similar stimulants ; but as they are liable to fail, hence perhaps the galvanic fluid and oxygen are deserving of some notice as means of excitation. In the application of every stimulant in the last stage of fever, it ought always to be borne in mind, that powerful or too often repeated doses may soon sink the strength ; and therefore if such measures as the galvanic fluid or oxygen should ever be ascertained expedient, they would require a still more circumspect employment than wine and the like excitants. The utility of certain mineral acids has been vaunted lately as a new discovery ; but Sydenham employed them, and has left his unequivocal testimony in favour of the sulphuric. Of the mineral acids, the muriatic is that which I have most frequently prescribed, one or two drachms largely diluted with water in twenty-four hours, so as to make it a sort of common drink, and certainly its effects have sometimes been very beneficial, where it kept the bowels open, without exciting griping pains or diarrhœa. But fresh lemon juice is perhaps equally useful, at all events it is highly refreshing to the sick, and may be more extensively administered, since it does not, for example, disorder the bowels under the operation of calomel, a purgative often exceedingly serviceable in this state of the skin.

The cases of the inflammatory typhus received into the Fever Institution this year have been much more numerous than any others, and when they occurred in the fore-mentioned class of the poor, the inflammation generally assumed the sub-acute form, and was mostly attended by a rather soft, compressible pulse. In these, the blood drawn from a large vein did not most frequently show the buffy coat even early in the stage of excitement, though the crassamentum was then commonly firm, but in some instances, where the lancet was somewhat later used,

it was comparatively loose. General blood-letting, in such subjects and cases, was only beneficial when moderately used early in the attack, and when the fever had continued a few days, in them the result of my experience is most in favour of local bleeding; for in referring to my notes, I have been much struck with the great relief which leeches have afforded, when timely applied to the head, chest, or abdomen, accordingly as the inflammation happened to be seated in one or other of these parts. But as the frequency or the force of the heart's action was invariably much diminished in those examples where leeching was so serviceable, it is mainly to the power of a small or moderate loss of blood, thus drawn, over the heart's action, that I would ascribe their efficacy rather than to the received notion of revulsion. However the fact may be explained, it shows how useful the application of leeches may be, when the object is to reduce inflammation and to save the strength in an enfeebled frame which has laboured under genuine typhus for some days; but the benefit of leeching has been nowhere more apparent than in sub-acute inflammation of the brain, the pain having been in general greatly lessened, and sometimes wholly removed, while the pulse fell considerably, and a most remarkable change for the better took place in the expression of the countenance. On inquiring into the previous history of the patients now specifically considered, I have found that many of them had lived upon the most meagre diet for some time before the attack, while not a few had indulged in the use of ardent spirits whenever attainable: so that these and the like circumstances had not only lessened the constitutional tone, but also created a species of nervous temperament which required a more cautious depletion than in patients ordinarily met with in private practice; for whenever too much blood is abstracted in morbidly susceptible habits of this kind, the nervous system at once grows highly irritable, and indeed, to use the forcible expression of an enlightened friend, often becomes as ungovernable as a wild horse without a bridle. Besides, there is something so peculiarly depressing in the influence of

contagion itself over persons who have been previously destitute of most of the common comforts and some of the necessities of life, that nothing but the presence of some threatening mischief would justify in them the use either of general or local bleeding, the list of which for the most part is only admissible at an early stage of the inflammatory typhus; but as the stage of excitement is often so prolonged when the inflammation is sub-acute, it is most difficult to mark the limit at which we should stop in the use of local blood-letting, except where the stage of collapse is actually present - rapidly approaching, and then we should forbear, as the application even of a few leeches might be fatal. Since whenever there is just cause for doubt about the propriety of general blood-letting we ought to prefer local so wherever there is a similar doubt about the propriety of local blood-letting, we should prefer purgatives; and these, judiciously and perseveringly administered, will often succeed when every other means would have failed, in those complicated cases of typhus where subdued degrees of inflammation exist conjointly with a considerable loss of strength, as in the patients now under notice. Yet it ought not to be forgotten, that in such, blisters are agents of much efficacy. The irritation which they excite upon the surface of the chest, abdomen, or spinal column often considerably diminish the internal affection; and where any disposition was evinced towards stupor, they have appeared especially servicable when applied over the head, in cases admitted late into the hospital.

Besides the peculiar order of the poor, so often referred to above, many persons have been brought, laboring under typhus, into the Fever Institution, who were previously well fed, clothed, and lodged, and accustomed to sufficient exercise in the open air. In such patients, particularly when young or middle aged, the general result of decisive venesection at an early period of the inflammatory typhus has been highly satisfactory not only to myself, but also to my able and excellent colleague Dr. Cleverly, though the effect of local bleeding has been often, and of purging always, a subsidiary of considera-

ble force. It was before mentioned, that the pulse was mostly soft and compressible, even in the beginning of the inflammation to typhus when it occurred in certain habits relaxed from want of proper nutriment air, and other circumstances. In the robust patients now under consideration, the pulse was frequently full and resisting, or at least generally indicative of more or less increased energy in the stroke of the heart. This difference in the pulse merits some attention. A soft, small, fluent pulse commonly indicates in typhus, that local will be preferable to general bleeding, particularly if the fever be of some days duration; a hard, full, jerky pulse commonly indicates, that general will be preferable to local bleeding, particularly in the commencement. But in determining which is to be used the constitutional powers should always be carefully considered. When in typhus the preternatural force in the heart has once been removed, which is shown by the pulse becoming weak as well as soft, then local will be more suitable than general bleeding, even in patients who had been constitutionally vigorous, if any signs of visceral inflammation should still remain. An hospital where, from the mode of ventilation, the temperature has hitherto varied with that of the external atmosphere, is not a place suitable for the common exhibition of calomel as an alternative in fever; and as it, therefore, has been most frequently given as a purgative during the excitement, what relates to its alternative powers in the inflammatory typhus of the metropolis shall be considered in another place. It may be subjoined, that purging is an evacuation which has been remarkably well borne and highly advantageous in every modification of the inflammatory typhus which has been admitted into the Fever Institution. In the cases of the congestive typhus which have come under my care, where it was absolutely necessary to create re action in order to save the patient, the influence of calomel as an alternative was unquestionably favorable, in conjunction with external warmth, tepid drinks and laxatives, and sometimes with blisters and local bleeding; for in these cases the use of the lancet was gen-

erally inadmissible, sometimes from the great constitutional feebleness of the patients in whom they occurred, but far more frequently from the too advanced stage at which they were sent into the wards. Indeed several patients have been received in a dying state, who, from the preceding history which was collected, had exhibited no signs of excitement, but who had sunk into the congestive typhus, under the first shock of the contagion ; and it was curious to remark what a very different aspect the disease had, even in this advanced stage, from the simple, or the inflammatory variety. The face and general surface was commonly pale, mixed however with a certain shade of duskiness in several places, most evident at a short distance from the bed, while dark petechiæ were often scattered here and there on the skin. Before coma existed, the expression in some cases was idiotic, and in others marked by a wild or vacant stare ; the tongue was mostly white, soft, and moist with a ropy saliva, the tunica adnata blanched to whiteness, and each pupil of the eye more or less dilated. Often in such cases, a faint smile or grin was now and then observable, with a quivering motion of the upper lip, mostly attended by starting of the tendons at the wrist ; while indifference to surrounding objects, or an alternate stupor and delirium designated the mischief in the brain, which at last generally terminated in coma. The pulse was invariably feeble, the respiration irregular, and the animal heat below the natural standard in examples of such extreme severity ; but in others, where the venous congestion had been less overpowering in the beginning, some degree of re-action occurred towards the close, with a dry dark tongue, black petechiæ, and those symptoms which the older writers deem putrid. Upon the whole, indeed, typhus has assumed a remarkably urgent character in the metropolis during the last year, particularly where it was allowed to hold an unimpeded course in the wretched haunts of poverty ; and in the majority of cases, however favorably the patients might have been situated, an early tendency to petechiæ has been among the most prominent of the

external signs. Most recent writers on fever seem disposed to attribute the appearance of petechiæ to the hot regimen, and thus account for their frequency in the typhus of former times when that practice was prevalent: but though they may have been often thus produced formerly, yet this was not the cause in a great many of the epidemic cases which have occurred in the metropolis, for the petechiæ in some instances appeared on the first day of the attack, and frequently on the second and the third; and it is therefore highly probable, that petechiæ sometimes occurs as epidemical peculiarities wholly unconnected with the mode of treatment which may be pursued, nay, this is certain in the instance above adduced. The petechiæ were sometimes so peculiarly small as to have the character of an almost anomalous rash, and sometimes so large and thick-set as to make the skin almost red as in the measles or scarlet fever, for the eruptions of which indeed I have known them occasionally mistaken; but whatever were their characters in the first or intermediate stages of the simple or inflammatory typhus, they have been invariably lessened by purgatives, especially where calomel was given for some days successively. Numerous cases have been brought into the Fever Institution with as malignant a combination of symptoms as any that Huxham and other authors have recorded in their works, which proves that the disease is liable to have the same characters now as formerly; and yet a large proportion of the cases just alluded to was certainly composed of the inflammatory typhus, the circumstantial evidence of symptoms, and the more direct evidence of dissections having alike shown, that the inflammation was not confined to one viscus, but had attacked those of the head, chest, and belly. It is however deserving of particular notice, how comparatively mild an aspect the disease soon assumed under the cooling and evacuant treatment, in many of the patients early removed into the Institution; and even those instances which did not undergo so speedy an amelioration, have nevertheless

less been conducted to a successful termination, with very few exceptions indeed: so that the number of deaths has been made up, in a great measure, from cases sent into the wards, all but hopeless or actually moribund. From all that I have seen of typhus in the metropolis, I am fully warranted in concluding, that evacuations and the a-typhlogistic regimen, properly varied according to the character of the cases and the constitution of the patients, are highly efficacious in the general result, when timely applied, even in the aggravated forms of the disease; but that, in such examples, the efficacy of medicine lessens in a ratio with the advancement of the complaint towards the last stage, in which most agents are of doubtful, if not of dangerous applications, except those gentle ones termed laxatives.

Few diseases being more liable than typhus to leave predispositions, as it subsides, to secondary attacks of fever, it may be of some service to the inexperienced to bring them, as it were, to the bed-side, and briefly point out the causes, the peculiarities, and the methods of treating such attacks. Secondary fever may proceed from six causes, namely, re-infection, uncleaned bowels, errors in diet, diffusible stimulants, too early or too much exertion, and the influence of a low or variable temperature in the convalescents' apartments. Where a number of people have been confined in an atmosphere not sufficiently refreshed by ventilation, typhus itself is apt to return from the influence of the accumulated matter of contagion; the general debility, which for several days usually attends convalescence from a first attack, strongly predisposing the body to a second, where the convalescent breathes a contaminated air. On this account, every Fever Institution should have convalescent wards, into which patients ought to be removed as soon as they have recovered from typhus; for if they remain in wards containing other patients actually labouring under the disease, they may contract it again, whatever care be taken as to ventilation, from going about the beds of those

patients, with whom they are apt to converse. When the strength has once been fully restored, then the body, so far as I have remarked, resists contagion better than before ; though those who have recovered from a first attack should always avoid if possible the chance of a second by a removal into a pure atmosphere. If a second attack of typhus occur in a highly exhausted subject, soon after the first has been subdued, the face often becomes sunk and pale, the skin cool, the head giddy, the pulse feeble and fluttering, the respiration quick, short, and weak, and the patient may thus sink with rapidity, before the developement of the stage of excitement. External warmth, strong warm tea, a little æther with six, eight, or ten drops of laudanum, I have found among the best measures under such embarrassing circumstances of the first stage ; and even where the stage of excitement is subsequently developed, still the danger is very considerable, especially if any degree of wheezing be present, for such peculiarly enervated patients can only bear the mildest treatment. Tepid ablutions, therefore, laxatives, sub acid drinks, consoling language, and a fresh cool atmosphere are the means usually most suitable for counteracting an excitement of this kind ; though when the bowels shall have been sufficiently opened, very small doses of Dover's powder, say from one to three grains about twice in twenty-four hours, sometimes allay irritation and open the skin. Thin arrow root with lemon juice is the best diet in such cases, but the appetite is usually so prostrate that very little can or ought to be given at once, and indeed it should never be forced against the inclination of the sick. When typhus supervenes a second time, where the interval has been sufficient for the strength to be in some degree recruited, it may most frequently be controlled by active purgatives and the cooling regimen : if however any threatenings of inflammation appear, leeches and blisters should be promptly applied, which will commonly supersede the use of the lancet ; and when inflammation is really present it must be managed as

formerly recommended in the inflammatory typhus, according to its extent, seat, and character, together with the constitutional powers of the patient.

If the bowels be neglected for a few days during the convalescence from typhus, they are liable to be over-loaded, and the tongue in that case becomes white and furred, the breath somewhat offensive, a fever suddenly or insidiously resulting from the intestinal irritation. The remedies are free purgation, the tepid bath, and an abstemious diet, but if any signs of abdominal inflammation appear when the bowels have been well evacuated, a full opiate will often allay the pain, and render venesection unnecessary: indeed when the bowels have been thoroughly opened, if any constitutional irritation, or rather if a quick pulse and liottish skin should remain without any marks of inflammation, small occasional opiates will generally prove highly beneficial, though laxatives should be daily prescribed so long as the fever shall continue. In most secondary fevers, the nervous system is peculiarly susceptible, from the body not having attained its full tone of vigour before the attack: this state of the nervous system frequently makes those medicines called anodyne highly expedient, either during or after the employment of purgatives or laxatives; and certainly opium or hyoscyamus is sometimes remarkably advantageous, particularly when an unusual irritation has been excited on the mucous membrane of the bowels.

During convalescence from typhus, the diet ought to be most carefully regulated. At first it should consist of very light broths, gruel, or arrow-root, and the convalescent should not be allowed any solid animal food till he is able to walk about; and even then it should be given in very small quantities at first, and gradually increased, for a full meal of it might at once excite the system into fever. Many cases of secondary fever have fallen in my way which arose from vain attempts to raise the prostrate powers suddenly into strength by too nutritious food, and several also which originated from indulgen-

ees in small portions of indigestible articles, such as sausage, cheese, pastry, or raw vegetables. Even ripe fruits should not be indiscriminately or abundantly allowed during convalescence, as some of them are apt to induce fever, especially if the rinds or seeds be swallowed, or the fibrous parts of certain fruits, which may keep up an irritation for many days, by passing undigested into the bowels. The pulp of roasted apples is one of the most suitable things, the pulp of fresh grapes, or the juice of a ripe orange. In convalescence, the appetite is often keen and capricious at the same time, but the medical attendant should restrain both these conditions within due bounds, and give precise directions respecting the quantity and the quality of the food; while he ought likewise to preserve a proper balance between the *ingesta* and the *egesta*, by the occasional exhibition of laxatives, which are nearly always required at some periods of convalescence. When fever has been produced by too full a diet, the vascular system is generally in a state of plethora, so that general or local bleeding is mostly requisite in the first instance; but as the functions of the stomach, liver, and intestines are synchronously disordered, purgatives should be persevered in until the fever abate, and the secretions become natural. At first, the stools will commonly be composed of dark, thick, liquid matter, mixed with hard lumps of feces, and they ought to be daily inspected until all scybala be dislodged. In the beginning of such attacks calomel and rhubarb are commonly the best purgatives, followed up by the castor oil; but after two or three doses of the former, an action on the bowels may be maintained by the latter alone, which operates with little irritation, and which, by not changing the colour of the evacuations, shows us when the secretions are really natural. Where any irritating matter has been taken into the stomach, it is best to expel it by a gentle emetic, and to allay the turbulence afterwards by a small opiate; but if this matter should have passed from the stomach into the intestines, one or two purges will be requisite, with an anodyne afterwards. The use of diffusible stim-

ulants, however sanctioned by common routine, are most decidedly prejudicial during convalescence in a large majority of examples, producing with rapidity all the bad effects of errors in diet; and that practitioner indeed will have most reason to be satisfied who not only in general rejects wine, but likewise tonic medicines, and who, instead of employing such means, places his patients in a fresh atmosphere, and occasionally exhibits laxatives.

Genuine typhus nearly always leaves considerably more relaxation of the whole habit than those fevers which arise not from a specific contagion, but from some ordinary cause; and it is partly on this account that if convalescents sit up too long at a time, or if they take too early or too long exercise, whether of body or mind, they may readily lapse into secondary fever. It is best, therefore, to permit them only to sit up for a short time at once, and to prohibit them from using any inordinate exertion until the strength be completely re-established; and for some time after they begin to sit up, even their dress should be strictly attended to, and varied according to the season of the year, that they may neither be irritated by too warm, nor chilled by too light clothing. It is also important, that the temperature of the convalescent's apartment should be properly regulated while he shall remain weak; for if it be allowed to fluctuate with that of the external atmosphere, or if the air be admitted in partial currents, an attack of chilliness may succeed, and either at once threaten life, or be followed by febrile excitement. When the animal heat is largely and suddenly abstracted from the surface of an enfeebled and emaciated convalescent, the whole skin becomes deadly pale, the respiration exceedingly oppressed, and the pulse a merely small, undulating, fluttering line; so sunk is the heart's action for want of the stimulus of a due degree of heat in the body, and from the blood, in retiring from the superficial into the deeper seated veins, having accumulated too super-abundantly about the right ventricle and adjacent vessels. Some cases of this kind prove fatal in a few hours, where

the means of restoring the animal heat to its ordinary standard and universal diffusion, have been neglected or misunderstood; but if, as soon as the chill comes on, external warmth be perseveringly applied, if warm water, with wine, or even a little brandy, and six or eight drops of laudanum, be internally administered, all risk from chilliness will commonly be soon averted. In short the natural temperature will be restored, and the tide of the circulation again returning to the surface, the heart will at once be freed from over-distension, and roused into an energy sufficient to move the blood in its accustomed round. The animal heat is one of the principal media of connection between the nervous and vascular systems, and where it is excessive, the heart's action will be usually increased, and where it is deficient, that action will be usually diminished or oppressed. Such seizures as the above are unquestionably of the congestive order, but the exhausted subjects in whom they occur, and the extreme reduction of the animal heat render cordials necessary, as means of exciting internal warmth. It has been figuratively but forcibly said, that general rules in physic may murder their exceptions; and certainly the circumstances coupled with this peculiar congestion demand a treatment different, in some important particulars, from that adapted to congestions occurring in the fulness of health and strength, with a notable alteration in the animal heat. When the chilliness is overcome in the alarming attacks alluded to above, a copious perspiration frequently succeeds, and thus convalescence may be again shortly re-established; but if no perspiration should succeed, and if a simple or an inflammatory fever should supervene, it must be treated accordingly, due allowance being made for the debilitated state of the patient.

There is yet one point respecting secondary fever which I could wish were most particularly remembered, as it may enable others to save patients under circumstances, in which I have had the misfortune to lose some. Several instances of secondary fever have occurred to me, which were designated

merely by an increase of heat, a quickened pulse, and a slightly furred tongue, without pain or uneasiness in any part; in short at their commencement they were divested of every thing like genuine inflammation, and I, therefore trusted to evacuations by the bowels, and the antiphlogistic regimen. In some cases, this plan entirely removed the fever, but in others it failed, and as the excitement continued, I observed that in one, two, or three days, signs of positive inflammation began to appear in some important part; the inflammation being generally seated in that quarter which had seemingly suffered most during the progress of the primary attack of fever. Inflammations of this kind sometimes baffled all my exertions, for they came on so insidiously, from the general excitement acting on local and latent weaknesses, that now and then they at length suddenly overwhelmed the functions of a vital viscous, and as I had not anticipated, could not then parry the deadly attack. Occurrences of this kind, therefore, have put me actively on the watch, so that when a simple fever takes place secondarily, I now most frequently employ leeches in conjunction with purgatives, as soon as ever the skin grows hot and the pulse at all sharp or quick; and since I have pursued this method, internal inflammation has rarely arisen afterwards, provided a spare diet was strictly adopted at the same time, with absolute rest, and the tepid ablutions. Here the remarkable effect of the leeches has been to diminish the heart's action without reducing the general strength; and, even if accused of tedious repetition, I must again assert, that these little agents are powerful auxiliaries in the treatment of fever.

Having now considered the most important circumstances with which my experience has furnished me respecting typhus, some other affections shall be adduced, in order further to illustrate the pathological and practical bearings of the doctrine of a simple, an inflammatory, and a congestive form of fever.

CHAPTER II.

COMMON CONTINUED FEVER.

AND

ITS VARIOUS MODIFICATIONS.

THE common continued fever arises from a great variety of ordinary causes, but most frequently from the influence of the weather, and like typhus, which arises from one specific cause only, it has different forms and gradations, presenting indeed, amidst its distinguishing signs, fully as much pathological variation; yet as, in developing these, I shall be compelled to dissent from many received opinions, it will be necessary first to notice the more familiar attacks of this complaint, and afterwards to show how, by a legitimate generalization, it may be made to embrace most of those disorders marshalled under the Phlegmasiae of modern nosology.

When any one, after having been a little chilly, has some increase of heat on the skin, some rise in the pulse, some whiteness of the tongue, and some muscular and mental languor, he is popularly said to have gotten a feverish cold. This is the very simplest form of the common continued fever, which is neither unusual to children nor unknown to adults; and among the former it is often supposed to yield rapidly to the nostrums of the nursery, while among the latter it is often removed by sweating or purging. The truth is, that slight seiz-

ures of this kind would most frequently end favourably in a few days, through that natural tendency which the organs have to resume their wonted functions of health; but as a medical man cannot in any case be assured, that it will continue of so mild a type throughout, he should always assist nature by those measures which are known to restrain excitement. In a somewhat higher degree of the common continued fever, the chilliness is followed by more heat of the surface, more quickness of the pulse, more foulness of the tongue, and more prostration of the strength and appetite; and from an early period, some pain or aching exists in the forehead, temples, or occiput, which is often accompanied with a feeling of confusion in the brain, and which is always worse at nights, usually preventing sleep. The excitement proceeds pretty evenly, except that some abatement of it in the morning, and some increase of it in the evening, may commonly be observed, and these ebbs and flows of the fever are usually most distinct where local irritation is not urgent. Even such cases as now alluded to sometimes end well spontaneously by perspiration, diarrhoea, a very copious discharge of urine, or hemorrhage from the nostrils; and then the heat subsides, the pulse grows slower and softer, the skin smoother and laxer, while every trace of uneasiness in the head mean time disappears, with a return of sleep and appetite. But in other cases left to themselves or maltreated in the beginning, the fever increases, the brain is slowly and at last deeply oppressed, and when the excitement recedes, instead of any amendment, the vital powers rapidly give way.

Cases of the common continued fever more forcibly declared from the first, are ushered in by a tolerably distinct cold stage, in which general lassitude and restlessness, with confusion or uneasiness in the head, are the most predominant symptoms. In this stage the pulse is small, quick, and oppressed; the breathing more or less anxious; and the face as well as the whole surface paler than natural. With some dryness or claminess of the mouth, there is loathing of food; flatulancy of the

stomach: and often nausea, retching, or vomiting. On the retrocession of the cold stage, which may continue from a few to several hours, the skin becomes preternaturally red, hot and dry, and the pulse more frequent, full, and vibratory.(p) The face is now flushed, the tongue white and rough; the patient complains of a deep, dull, or throbbing pain in the head, he feels himself more incompetent to mental exertion than before, and his restlessness and oppression are both increased. The symptoms do not vary much during the first four or five days; except that the head is more uneasy and confused during the night, and that the hepatic, renal, and intestinal secretions become more disordered. A slight remission of the pyrexia also generally comes on every morning, and an exacerbation every evening; and it is to the latter that the increased disturbance of the sensorium at nights is to be attributed. Indeed some degree of intolerance of light and noise, and suffusion of countenance, with great heat of the forehead, and beating of the carotid and temporal arteries early demonstrate an augmented flux of blood to the brain; and if there should not be an obvious tendency to delirium soon after the formation of the hot stage, it most frequently occurs in the progress of the fever. For the first eight or nine days the tongue continues of a white or yellowish colour, and the pyrexia maintains the inflammatory aspect. But shortly after that period, a stage of collapse gradually approaches, and what is termed the nervous symptoms at last become the most conspicuous; the patient sinking into delirium, or into an imperfect stupor with short hurried breathing, dilated pupils, dark tongue, and tremulous hands. In the worst cases the debility daily increases, and

(p) The pulse in common continued fever is generally, from the commencement, full, strong, and frequent. Indeed so uniform is this condition of the artery, that in most cases *between* the mildest and severest forms of the disease, it may be regarded as a pathognomonic symptom. In the very mildest cases the pulse feels hard alone, or hard, tense and firm, while in severe cases it has an obstructed feel, though differing so slightly from the hard pulse as often to be confounded with it.

death commonly takes place at the end of the second or middle of the third week, but sometimes later. Where the excitement, however, has been of shorter continuance or of less intensity, favourable signs occasionally appear in the advanced stage; for though the pulse may become weaker as the collapse approaches, the skin and tongue grow moister, and the respiration is not only deeper but more easy: moreover the patient begins to turn upon his side, has more desire for food, falls into refreshing sleeps, and thus recovers by degrees. Yet in such cases, mental alienation now and then continues during convalescence, and, though rarely, even remains some time after the re-establishment of the strength, but I never knew an instance in which it became permanent in an adult.

Besides the preceding, the common continued fever puts on highly acute symptoms, and unless promptly arrested, terminates fatally within the first nine days. From the commencement of such cases there is greater uneasiness in the head in this, than in any other form of the disorder. The voluntary and vital powers are likewise much oppressed in the cold stage, and on the subsidence of the latter, an excessive determination of blood takes place to the brain; from which successively proceed great aversion to light and noise, watchfulness, a marked confusion of the mind, and often an unceasing and high delirium. An extreme irritability of the nervous system attends the developement of the fever; the arms are tossed about the bed; the head is moved from side to side; and the position of the lower extremities frequently changed. The skin grows exceedingly hot, and is often so preternaturally sensible, that the patient complains when it is only slightly touched; if his head be raised from the pillow he is generally sick; and he frequently has flying pains, now in one and then in another part of the body. Throughout the stage of excitement the face is highly flushed; the breathing quick and anxious; the tongue dryish and foul; the stomach flatulent or irritable. The pulse is not only frequent, but the carotid and temporal arteries beat with considerable force. High deliri-

un or great mental confusion may continue from forty hours to four days, but the one or the other is succeeded by a low muttering delirium, and that again by heaviness or coma; and it is in this last state that an universal collapse of the vital powers occurs. The patient now lies stretched out upon his back, moans a great deal, with his mouth open, and the eyes turned upward. The pupils are dilated and insensible to the stimulus of light, and one of the palpebrae is generally paralytic. Spasmodic twitchings may be observed about the face, but particularly at the wrists; the chest heaves laboriously; the pulse flies with a kind of convulsive agitation; and a superficial glow of heat is diffused over the skin, which is bathed in a dewy sweat. But the heat soon gives way, the extremities become cold, and the sphincter muscles are relaxed. In this condition life is either very suddenly terminated by convulsions, or it is extinguished in a few hours by the failure of the pulse and of the respiration.

From the foregoing descriptions, it will appear, that this disease is attended by a mild, a moderate, and an excessive excitement of the heart and arteries; and that the symptoms are apparently modified as the one or the other of those conditions may happen to prevail. When the excitement is mild, the functions of the stomach, of the skin, of the liver, and of the kidneys are more or less disordered; while the uneasiness in the head and the loss of mental and corporeal energy indicate some disturbance in the cerebrum. But if the local and general disturbances of the circulation be early removed by art or by nature, no topical inflammation can strictly be said to exist. It is true, that, next to the brain, the secreting organs appear more especially affected, but morbid secretions alone do not constitute inflammation; since, to give an obvious example, those in the mouth are morbid in many fevers without any evidence of inflammation there. Yet even in the simplest condition of febrile excitement the increased re-action of the large as well as of the capillary vessels is closely allied to inflammation, and this is proved from the former

sometimes passing into the latter; so that the mild may be lost in the inflammatory forms of the common continued fever. Upon various occasions, the system maintains a brief excitement of the heart and arteries with an almost equable distribution of blood; but if that excitement be rapidly renewed, or continued beyond a certain period, a continual fever is produced, with topical accumulations of blood sometimes approaching, and at other times amounting to actual inflammation. In the second modification of this disease, it has always appeared to me, that a low or sub-acute species of inflammation existed in the brain, soon after the full emergerment of the fever; for what else could produce the constant pain and load in the head, the watchfulness at nights, the aversion to light and noise, and the gradual approaches of delirium? It is a fatal error in practice to suppose that visceral inflammations are always denoted by excessive pain and other striking signs; and when they are of a subdued character the danger is often the greater, because we are then more apt to be lulled into a false and fatal security. The third or excessive modification is so strongly expressive of an acute inflammation of the brain, that it can neither be disputed nor mistaken; and as it at once impresses us with an alarm commensurate to its peril, we are prepared to encounter it with our most efficient weapons. Yet if a reference to the symptoms should be deemed inconclusive as to the inflammatory nature of the two last mentioned forms, I might confidently appeal to morbid dissection which, as far as my experience has extended, always discovers distinct traces of inflammation either in the brain itself, or in the meninges.

But though there be cerebral excitement in the simplest, and cerebral inflammation in the most severe forms, and though one or other of those states may be practically considered as the essence of the disease described, yet now and then other textures are incidentally much excited or positively inflamed at the same time, particularly the trachea, the pleura, the liver, and the intestines. The inflammation of these parts may also be of the sub-acute or of the acute kind; and the symptoms

will be moderate or severe, the termination protracted or accelerated, agreeably to the presence of the one or of the other. Yet it is the excitement of the heart and arteries which produces these affections by operating upon local predispositions, as shall afterwards be explained. When any of such affections are co-existent, they usually heighten the general fever, and aggravate the disorder of the brain, and in short considerably augment the danger. But though this disease, in its ordinary forms, is strictly one of simple excitement or of inflammation, yet it occasionally assumes irregular aspects, and it will therefore be proper to allude to these here. In speaking of typhus, I have endeavoured to prove, that, in fevers attended by an universal increase of animal heat, there is a preternatural fulness of blood on the side of the arterial system; and also on the contrary, that in those where there is a want of an unequal development of what is called re-action, the venous system is over-loaded with blood.(q) From these premises, founded upon what actually occurs, it must necessarily follow, that more or less arterial fulness exists in the forms of the common continued fever which have been noticed. But it sometimes happens, after an exposure to the causes of this disease, that the skin becomes cooler than natural, the heart's action oppressed, and the whole system so prostrate, that either no re-action takes place, or merely partial and irregular indications of it in the pulse and on the surface. Now in these last mentioned examples, there really is congestion in the venous system, including the right side of the heart under that name as well as those vessels which carry the black blood; but having entered into these morbid states in the treatise just al-

(q) It may be remarked that, generally in this, as well as in typhus fever, some discrepancy exists between the action of the heart, large arteries, and capillaries. This preternatural fulness of the arterial system of which our author speaks, causes the heart and large arteries to act with undue force; consequently the capillaries are stimulated, their action increased, and after a little time they become exhausted: thus the balance between the venous and arterial system is destroyed.

duced to, little more is necessary than to add, that from whatsoever cause those states may originate, their pathology and treatment are similar. In strictness of received phraseology, the congestive forms of disease can hardly be denominated febrile, since to fever is generally annexed the idea of an equally augmented heat on the surface of the body; but as a deficiency or irregularity of heat generally ushers in the first stage, and as, instead of being followed by a regular re-action of the arterial system, this state sometimes remains unaltered, venous congestion ought clearly to be considered an essential part of the phenomena, in most febrile affections.

For the removal of the simplest form of the common continued fever, rest, spare diet, and purgatives will be fully adequate if early adopted. These measures indeed should always be enforced, since in the mildest cases, through neglect, an obscure inflammation of the brain or of other parts might gradually arise out of the general excitement. As catarrh not unfrequently occurs incidentally in all the modifications of this disease, whenever it is present it should be strictly attended to, because it sometimes serves as a mask to the insidious progress of a low species of cerebritis. If with a degree of catarrh there be nitid, confusion and constant uneasiness in the head, with restlessness and general oppression, it will often be safest to abstract a little blood by leeches or the lancet at the outset; and afterwards to prescribe tolerably brisk purgatives with a blister to the sternum or between the shoulders. When sufficient evacuations have been premised, the tepid affusions may be advantageously used in the day, or the warm bath now and then. These measures, succeeded by laxatives during the day, and sudorifics, with now and then a small anodyne, during the night, will almost invariably lead to convalescence: but even in that state the regimen should be abstemious for some time, as strong food and diffusible stimuli might re-produce the fever, or pave the way to chronic derangements of the viscera.

In the severer modifications of the common continued fever, the lancet is an excellent remedy. That form attended with a sub-acute inflammation of the brain may unquestionably be often overcome by a steady perseverance in aperients when exhibited from the very commencement: yet it is much preferable to begin by general or local bleeding, since by such a procedure we greatly shorten the duration of the disease, and more effectually prevent the danger of organic lesion. An impression may be made in five minutes by bleeding, which cannot be made in five days by purgatives; and the influence of these two remedies should always be united in all the inflammatory cases of the common continued fever. In the sub-acute kind of inflammation, bleeding may be employed beneficially several days after its occurrence, but the acute is so rapid, that bleeding is only useful or even admissible at an early period. Yet even in those examples where there is sub-acute inflammation, the earlier bleeding can be used the better, because in the commencement, it often cuts short the disease at once: whereas at a more advanced period it very often only so moderates the symptoms, that the cure must be finally accomplished by purgatives, and even these will sometimes require the aid of mercurials. When a disordered condition in the vascular system has existed but a short time, it may be speedily removed by decisive measures; but when it has been confirmed by a longer continuance it can only be gradually overcome. If the practitioner bleed at the beginning of the sub-acute sort of inflammation, the blood, usually should be allowed to flow till the pulse become a small, feeble, fluttering line beneath the finger, whatever quantity be required to produce that effect. On the other hand if he bleed at an advanced period, he must be moderate in the abstraction of the vital fluid: for an error on the side of excess, though it lessened the topical disorder, might then destroy all chance of recovery by irretrievably depressing the general powers of the system. On the *first attack* of the inflammatory forms, the strength of

the patient is not subdued, but simply suppressed, (r) and therefore he can bear evacuations not only without prejudice, but with the most decided advantage : *at the middle* period of such cases the strength has been affected by continued excitement, and therefore depletion should be proportioned to the change induced ; and as *towards the end*, the vital powers are prostrate by the progress of the disorder, general bleeding, and indeed all copious evacuations are to be avoided as mortal measures.

Opportune and moderate evacuations, together with blisters, will generally arrest cases combined with the sub acute kind of inflammation ; and where they are not likely to succeed, calomel should be given as a salivant, in the mode afterwards to be particularly specified. On numerous occasions I have seen an evident improvement in visceral inflammations from the time that ptylism took place ; in fact very few inflammatory cases have proved fatal in my practice, where it was decidedly induced.

When the practitioner is early called to any case combined with the acute kind of inflammation, he must come not only armed with lancet, but with the determination to employ it most decisively. The patient should always be bled at the commencement until he is faint ; and if this treatment should not afford a marked relief, the operation should be carried to the same extent, at the lapse of an hour. Nay, it is generally best to stay with the patient half an hour after the first bleeding to be fully assured of its effect ; and if in that short interval, there be not an abatement of the pain and of the fever, the venesection should again be used without further loss of time. In such urgent examples every moment is most precious, for they gather an accumulating force from delay. By pursuing, howev-

(r) This fact should be kept constantly in mind, otherwise the practitioner will be likely to fail in promptitude and decision at the only moment when promptitude and decision will not be injurious. It will be recollected that our author in the article on typhus, taught the same doctrine when speaking upon *apparent* debility.

er, the plan above mentioned, I have seldom had recourse to the lancet more than twice ; but then purgatives have been promptly and vigorously exhibited, and these have often been aided by local bleeding, blisters, and repeated doses of emollient. In both the moderate and extreme cases of the common continued fever, local blood-letting is generally beneficial ; but as a deep and permanent impression can only be made by operating through the heart on the whole system, it generally should be preceded by venesection. That step having been taken, the sooner leeches, or searification are employed the better, provided there be any remains of pain or tenderness over a vital region.

A stout young man, who was a farmer, had been exposed to a hot sun while ploughing in the middle of the day ; and in the evening he rode several miles in a heavy shower of rain. He felt chilly, and passed an uncomfortable night, though he had some sleep. On the following morning he complained of great weight and uneasiness in his head, and became delirious the next day ; the pulse being then sharp and frequent, the skin very hot, and the eyes not only red but intolerant of light. The pupils sometimes contracted and dilated with great rapidity ; an appearance not unusual in excessive determinations of blood to the brain. The tongue was white and dry in the middle ; the respiration hurried ; the belly bound ; and the stomach flatulent. Retching invariably occurred when the head was raised from the pillow. About sixteen ounces of blood were drawn from the arm twenty-four hours after the development of the fever ; and as soon as the bowels had been freely opened, some leeches were applied to the temples, and a blister was placed between the shoulders. No benefit resulting from these measures, he was subjected to the tepid affusions three or four times, but without any obvious relief of the symptoms. The head was next shaved, and covered with cold wet cloths, and the cathartie plan more vigorously pursued. Still there was no amendment ; on the contrary the patient grew worse and gradually sinking into a coma, died in convulsions early

on the sixth day of the disease. On examining the body after death, the pia-mater exhibited strong marks of previous inflammation, there were many bloody points on cutting into the substance of the brain, but both the thoracic and abdominal viscera appeared natural, except that the gall-bladder contained much dark bile. The cerebral inflammation was here manifestly of the acute kind, and this was the cause of the rapid and mortal termination. In reviewing this case, there are two circumstances to be regretted: the first, that medical advice was not obtained until the fever had existed at least twenty-four hours; and the second, that evacuations were not carried to a sufficient extent when it was obtained. More blood should have been abstracted at first, and the operation, perhaps, repeated at the end of an hour; while the purgatives ought to have been conjoined with active mercurials.

An athletic man aged thirty years, fell from a boat into the river; and though taken out almost immediately, remained some time in wet clothes. He became very languid, felt great feebleness of the lower extremities, and had a strong shivering fit, on the abatement of which a violent re-action of the heart and arteries succeeded. What he now chiefly complained of was a violent throbbing pain in the forehead, accompanied with load and sickness of the stomach, and with some uneasiness in the site of the liver. The pulse was hard and strong, the tongue white, and the breathing anxious; and to these appearances were added, aching in the eye balls; extreme irritability of the whole body; inflation of the epigastrium; and a dull confused state of the mind, with an evident loss of memory. From the concourse of symptoms, no doubt remained, that an active inflammation had commenced in the brain or its appendages, combined with an affection of the liver, and perhaps of the stomach. He was therefore bled from a large orifice, supported in the erect position, until the pulse became a mere thread, and the face pale: syncope supervening he was immediately laid flat upon the bed. About twenty ounces of blood were drawn by measure; and on its separation from the serum

the crassamentum was cupped and covered with a thick buffy coat. The patient continued languid for more than a quarter of an hour, soon after which the fever returned with nearly as violent an excitement as before. As the head had not been so much relieved as might have been expected, twelve additional ounces of blood were abstracted; the patient fainted the second time, but the effect was most decidedly beneficial. A large dose of calomel and jalap was administered, and its action speedily determined to the bowels by repeated draughts of senna, combined with the sulphate of magnesia. These medicines operated copiously, and still further alleviated the symptoms; yet as he had some uneasiness in his side a blister was applied there, and the purgatives daily and freely repeated. By the rapid succession of these active measures, this patient was soon convalescent; but his mouth was sore above a week after his recovery, from the full doses of calomel which he had taken. This case shows very strikingly the great utility of prompt and powerful evacuations. Their speedy influence will not surprise those who have watched and siezed that brief period of acute disease, in which depletion is every thing; that brief period which, once lost in doubt and indecision, too often fatally reveals, that human agency is afterwards nothing.

A tall young man, of dissipated habits, seemed unusually dull for two or three days, but made no complaint except of slight uneasiness in the head; he even pursued his ordinary occupations, and one cold morning in December attempted to amuse himself by shooting along the sea-shore. He came home in the afternoon much fatigued; and about five o'clock was attacked with a cold shivering and felt such feebleness in the lower extremities as to be unable to stand. In about two hours an intense fever followed, which was soon attended by delirium. It was about midnight when I first saw him, and he then raved loudly and incessantly; but there was something peculiar in his frenzy. He suddenly passed from the extreme of joy to that of grief. From inquiry I ascer-

tained that a near relative had died some time ago, and that he had recently been engaged to a young woman to whom he was greatly attached; and it was to the death of the former, and to the excellencies of the latter, that his mind alternately turned. Whenever he mentioned the name of his relative he seemed oppressed with affliction; in a few moments he referred to the other subject, and was apparently in a transport of delight, so strange and incongruous are the associations of a disordered intellect. The pulse was full, bounding, and strong; the whole surface very hot; the face turgid and deeply flushed; the eyes were blood shot; and the countenance had a wild expression: from the commencement of the excitement, he had complained of an excruciating pain in his head, and of a great load at the stomach; but to all my questions respecting these as well as other points, no answer was returned by the patient; though I observed that he had frequent eructations, and short convulsive twichings of the upper extremities. The evidences of a very acute inflammation of the brain were here surely most manifest, and the danger was therefore considerable. Without loss of time a vein was opened in each arm; and probably about twenty four ounces of blood might have been drawn when he became faint. The effect of the operation, thus performed, was superlatively efficacious. There was not only an immediate relief of the more urgent symptoms, but the rapid abstraction of blood led to a speedy convalescence; nothing more being required than the application of a blister, and an active repetition of the purgatives for three or four days. In reviewing the result of these simple, though vigorous measures, it must be recollected that the violence of the vascular excitement had not existed many hours when they were adopted; and it will almost invariably be found, that a morbid action of an acute kind is the more easily reduced in proportion to the shortness of the time which it has existed. Yet it may be observed, that this patient had been slightly indisposed by an uneasiness in the head before the decided attack; and this previous disorder had determined

the seat of the topical inflammation, which arose so rapidly in the stage of re-action.

A young woman danced so much one evening as to induce copious perspiration, and considerable fatigue. She walked home, and being thinly clothed was drenched with rain. On going to bed she complained of a cold creeping of the skin, and though very weary passed a sleepless night. She vomited her breakfast the following morning, and was then evidently feverish, having an urgent thirst and a hot and dry surface. Some medicines were administered by her friends to make her perspire, and her feet immersed in warm water; but she grew worse, as the day advanced, and the medical attendant of the family was consulted. Finding that she had pain and giddiness in the head, with tense pulse, he took away about ten ounces of blood from her arm, and sent her a brisk purgative. She was somewhat better from these expedients, and had a little sleep on the succeeding night; yet she became worse the next evening, complained more of her head, and showed some signs of approaching delirium. The fever was now much higher than before, and having more oppression of the praecordia, she was morbidly sensible as well to light as to noise; and moreover she shrink from pressure applied to the right hypochondrium. It was at this period that my opinion was requested; and the surgeon in attendance agreed with me in the propriety of abstracting more blood. She was accordingly bled till she fainted; a blister afterwards applied over the region of the liver; and large doses of calomel exhibited, with other cathartics. On the following day there was less of general oppression and of local uneasiness; but as the pulse still continued quick, and the skin hot, we resolved to unite purgatives and alteratives. Six or eight copious motions were procured daily before bed time, and small doses of calomel repeatedly administered at night; this plan was pursued nearly a week, when the mouth became sore, and the patient convalescent. In this case the attendant inflammation was seated in the brain and liver; it was checked by the repeat-

ed evacuations, and finally removed through the agency of mercury.

The cases just adduced all occurred in subjects belonging to a country district, but many precisely of the same nature have been presented to me in the metropolis, and where the patients had been previously accustomed to nutritious food, and exercise in the open air, they have certainly borne depletion as well as those resident in the country; and it has only been in such as were very sedentary or very intemperate, or who suffered the privations and anxieties of extreme poverty, that the cautions before inculcated became so essentially necessary. It is common to assert, that the inhabitants of London not only cannot bear evacuations so well as those of the country, but that the same disease in the former often requires a treatment almost opposite to that suitable to the latter. Now with regard to the first part of this proposition it appears to me only true when applied to the most enervated portion of the population of London, since there are immense numbers who resemble in every thing the inhabitants of the country; and with respect to the second part of the proposition it appears to me erroneous, for I have not met with any disease in the metropolis which requires a treatment almost opposite to that which would be proper in the country, though fully convinced that the same principles of cure frequently demand to be modified in their application.

The common continued fever attacks people of all ages and constitutions, but especially those exposed to the vicissitudes of the weather in a weakened state; and indeed what is popularly called cold is by far its most usual cause, though sometimes it arises directly from the excitation of heat, and occasionally from errors of diet and fatigue of body combined with mental anxiety. It is often rise in summer when the atmosphere is moist, the heat in the middle of the day rendering the system susceptible of the chills of evening; and for the same reason the inhabitants of the warmer regions are much afflicted with it, as they are liable to be exposed to a burning sun in

the day, and to the cold damp dews at nights. The common continued fever has been distinctly noticed by Willis, and the works of Sydenham abound with descriptions and discussions respecting it, though both these authors assign to it various appellations; in fact all those fevers of a continued type, which Sydenham noticed as so particularly connected with certain constitutions of the atmosphere, are clearly varieties of this complaint. There cannot be a doubt but this disease appears in all climates. It is certainly most prevalent in those where the atmosphere is most variable, and agreeably to my observation, it is one of the most frequent disorders of Great Britain, even when limited merely to those modifications in which the head is slightly or severely affected. Cullen has made an approximation towards elucidating these modifications of the common continued fever, under the terms syuocha and synochus; but though the vital principle *genius* pervades his nosology more than any other of his works, yet his definitions, neither applicable to simple nor complex cases, show that his ideas were not distinct on this subject.

He defines *synochus* to be a contagious fever compounded of *synocha* and *typhus*, *synocha* in the beginning and *typhus* in the progress and towards the termination. This is one of those bold assertions by which men of genius apparently simplify an abtruse subject, and thereby at once captivate a multitude of minds; and the truth is, that this single assertion has actually had an immense influence on medical opinion and practice in modern times. If *synochus* be a contagious disease, why was it not made a variety of *typhus*? And if it be not a contagious disease, why should it be made a part of *typhus*? Even from Cullen it would appear that *synocha* is not a contagious disease, and as, according to his definition, *synochus* is *synocha* in the beginning, it is not therefore contagious at that time; and if it become really *typhus* in its progress, then a contagious essence is generated which did not exist, then indeed one disease has actually been converted into another having a perfectly new attribute. But have we any

other example in medical literature where an ordinary disease not having the property of contagion at the beginning is converted during its progress into a specific disease having the property of contagion ? (s) If the fact be as implied in the definitions of this illustrious pathologist, it surely forms an anomaly in our historical records.

If it be the fact, as I am inclined to believe, that genuine *typhus* always originates from contagion, how can the present epidemic be accounted for, which has raged in so many parts of the united kingdom for at least the last three years ? My own observations would lead me to infer that what has been so generally called *the Epidemic* is not one specific fever, but three fevers, especially different in their exciting causes ; and these fevers are, namely, *typhus* proceeding from a specific contagion, the common continued fever proceeding mostly from atmospheric influences, and a peculiar fever which arises from the huddling of many human beings together, in confined and filthy situations. A few words, therefore, shall be said about the distinguishing signs of each of these affections.

Cullen defines *typhus* to be a contagious disease, in which the heat is little increased, the pulse small, weak, and for the most part frequent, the urine little changed, the functions of the sensorium greatly disturbed, and the powers much diminished. Contagion is certainly the first essential of *typhus* but in the simple and inflammatory forms of the disease, the heat is often considerably increased, and the pulse neither small nor weak, though always quicker than natural ; and in the congestive forms of the disease the heat is either not increased, or concentrated in some particular parts, while others are frequently even below the ordinary standard of health. As for

(s) When the attendants upon the sick of this disease, have, by much watchfulness, labour and anxiety exhausted the powers of their systems, they not unfrequently become sick, and if it be a fever in any manner like the one to which they have been exposed, a circumstance very likely to happen, because like causes produce like effects, it creates alarm and the disease is hastily pronounced contagious ; but would not an equal degree of watchfulness, labour and anxiety under any other circumstances produce this disease ? We think this will not be doubted.

the urine it is often much changed in the course of the simple and inflammatory varieties, while in the congestive it is usually paler than natural at first, but in the progress of the complaint is sometimes tinged with bile. With the exception, therefore, of the contagious attribute, we cannot rely upon the circumstances just enumerated, as any way strictly pathognomonic. The disturbance of the sensorial functions, however, and the prostration of the moving powers are remarkably characteristic of true typhus. In the most frequent forms of the common continued fever, the patient has uneasiness in the head, but he has a bright eye and a countenance indicative of no mental depression or despondency, and he lies in a position which displays some command of muscles, and can move about the bed or get up with a tolerable effort: on the contrary in the genuine typhus, the eye always wants animation, the countenance has a dull, wearied, depressed, and often desponding expression, and the patient lies in a comparatively relaxed position, and moves himself more languidly, almost like one worn out by loss of sleep, and from some unusual fatigue. In the common continued fever, the patient commonly has not much inaptitude of mind, often answers questions readily, and in a pretty firm voice, without much increased agitation of the breathing; whereas in typhus, the answers are mostly given with languid slowness and reluctance, and much speaking obviously disturbs the respiration. In the common continued fever, the skin is generally of a brighter red than natural, especially on the cheeks; on the contrary, the skin is always more or less of a dusky colour in typhus, and an admixture of it may be best observed in the flush of the face. This duskiness of the skin is one of the proper symptoms of typhus, and seems to arise from some change in the constitution of the blood, which I have almost invariably seen darker on dissection than in ordinary fevers. In the worst cases, this duskiness increases in the progress of the disease, and lessens in those that assume a mild aspect. So very characteristic is this cutaneous duskiness, that I think I could distinguish typhus by it at any time, if two patients were

presented to me, the one labouring under that disease, and the other under the common continued fever. In typhus the tongue has an early tendency to become brown and dry in the common continued fever it is always white, and often even somewhat moist for the first week: in typhus the pulse is variable as to force and frequency, but it is seldom very resisting to pressure—but in the common continued fever it mostly resists firm pressure of the finger, from the freer stroke of the heart.

The above remarks are certainly most appropriate to the first and middle stages of the ordinary instances of typhus and of the common continued fever; for in the last stage of both, many of the symptoms so approximate as to make them more nearly resemble each other, though then the one is, and the other is *not* contagious; at least I have seen many patients in the advanced stage of the common continued fever with those signs deemed putrid, and yet never knew any of them infect their attendants with typhus. When however an accurate history cannot be obtained of the primary cause and previous symptoms of a case, in which the diagnosis is in the least degree doubtful, we should adopt measures proper to guard against contagion: even if time should prove such precautions to have been unnecessary? That constitutional derangement which, by a general term, we designate fever, is but an effect which proceeds from different sources; and that effect may be so modified at its commencement or acme as to express the real nature of the disease. But at advanced periods, the character of numerous acute complaints, accompanied with fever, is marked by many common symptoms; and these often become so predominant as to obscure those pathognomonic appearances which were conspicuous in the first stages. I have known some sensible men of considerable experience, who have been led to doubt even the existence of the distemper which I have called typhus, and deemed contagious. They became sceptical on this point from having never known any continued fever unaccompanied with an affection of the skin, spread by contagion; and believe that the disease here described under the

name of the common continued fever, has erroneously been supposed to be contagious from the marks of malignity often attendant upon its progress. It was unquestionably far too much the fashion at one time, to refer continued fevers to contagion, and this has been most satisfactorily shown, by many British and American practitioners; but in abandoning one extreme, we must not run into another, and doubt or deny that any fevers of continued type are contagious, except the exanthemata. It is certain, that if a number of individuals be exposed to marsh miasmata, or to a cold, wet, or very variable atmosphere, they may become affected with fever at different periods of their exposure; and thus a presumption might be formed, without any just foundation, that the disorder propagated itself from one to the other by contagion. Yet where no such causes as the above operated, if a continued fever, with certain peculiar signs, seized person after person, and only attacked those who had been exposed to the sick or to their attendants, could we reasonably doubt its being contagious? In the course of my experience I have collected some curious histories, from patients who had no theory to support, which proved that whole families and relations had been implicated, during their intercourse, from one case of typhus; though the visits which some of these persons made to each other, as alternately attacked, had often been short, or at considerable intervals, on account of the great distances at which they resided. (t) Having frequently, I repeat, met with such facts, I cannot but express my firm opinion that typhus is a contagious disease, the evidences indeed of which to my mind have

(t) Dr. N. Smith in his essay on typhus, page 11. *et seq.* has given some interesting facts on this point, and as our author since writing the above has given up this position, it would be well for the student to examine the matter for himself, both from observation, and reference to writers on the subject. It will be seen that Dr. Armstrong has labored much harder in this article to prove the contagious nature of typhus, than he did in the essay on that disease, a circumstance, on the whole not much to be regretted, since we obtain more clearly what *were* his views on this point.

been as convincing, in its successive seizures of different individuals, as that a flame if not prevented will spread from house to house: and as in this respect, therefore, I believe it to be signally discrepant from what has been denominated the common continued fever, it may be proper next to examine the difference which exists between it and that disease which derives its exciting cause from the accumulation of human beings under certain contingencies.

When a great many persons are confined together in too small a space without proper ventilation, when they allow that space and themselves to be loaded with filth and offensive effluvia, the local atmosphere is so liable to be tainted as to become an exciting cause of fever to those who breathe it; and its influence will be more extensively felt if those who are surrounded by it should be badly fed or have anxious minds, as these, by debilitating, predispose the body to the operation of the exciting cause. Many examples might be found where a fever seems thus to have been generated, especially in jails and camps in which cleanliness and ventilation had been neglected; and I have been credibly informed that such have occurred in the holds of ships at sea, though probably they are comparatively rare in those situations from the motion, volume and freshness of the air outside, which must necessarily ensure some ventilation within. The fever which I have seen produced by the combination of circumstances here specified, has a resemblance to typhus, and is often attended with petechiæ from an early period of its appearance; but it was marked by a most profound prostration of the appetite, while the brain was much less embarrassed than in typhus, and the constitutional disturbance rather indicated a low fever of irritation than of phlogistic excitement. From the agency of fresh air, purgatives, sub acid drinks, tepid ablutions, and a light diet of bland vegetable liquids, the petechiæ in general rapidly receded, and convalescence was speedily established. Indeed in this as well as in the common continued fever, the disease could very often be cut short by proper treatment at any stage of its dura-

tion; but this is not the case with typhus, which having once existed for a few days will generally hold a determinate course, in despite of every expedient. This fever of filth and noisome effluvia, is not of a contagious nature, at least so far as my limited observations reached: for I have not known any patient removed into a pure atmosphere infect another person, and this has often occurred to me in typhus.

The states of the air just alluded to as the exciting cause of febrile disease may be limited or extensive, as for example in the tainted precincts of an hospital or house in the one instance, and that peculiar constitution of the atmosphere in the other, in which a non-contagious disease rages epidemically and widely. With respect to the former it is well known, that attacks of erysipelas are more common in hospitals than in private houses, so much so in fact, that I have known few patients escape at certain seasons of the year: even in private houses, catarrh will sometimes seize those members of a family successively who had been most confined within door, while those escape who are much abroad; and yet both in such cases of erysipelas and of catarrh I have never been able to satisfy myself, that either spread by contagion, but have rather imputed them to some local or common taint of the air. Few men have entered upon the question of contagion quite unprejudiced, and many have sought for facts merely to confirm some speculation first framed in the closet; so that it is not likely for me entirely to have avoided a bias which has influenced the opinions of men so superior for talent and attainment. All the observations, however, which I have been enabled to make incline me to believe that a fever is never contagious except it originates from a *specific* cause; and hence I am inclined to doubt the commonly received opinion, that diseases proceeding from an ordinary cause may become contagious in their course, from the influence of internal or external circumstances. Yet I wish it to be distinctly understood, that I do not speak positively respecting this subject, but would rather leave it to be settled by future inquiries, when more minute and ex-

tensive facts shall have been accumulated. To assert, as one able author has done, that no combination of external or internal circumstances can generate a contagion which did not previously exist, is surely to pre-suppose, that we are acquainted with all the internal and external combinations which can take place—an extent of knowledge which we do not and shall never possess; and since it is most consonant with the principles of philosophy to suppose, that contagions were originally formed by the combinations of internal or external circumstances, it is but fair to infer that the known ones might at some æras be thus formed anew; as combinations which had once occurred appear to have a greater chance of occurring than not of occurring again, in the circle of ages in which the world may be destined to revolve.

We know little or nothing in regard to the peculiar constitutions of the atmosphere in which certain non contagions diseases epidemically prevail, nor indeed of those constitutions which favour or suppress diseases actually known to be contagious. Chemists have told us, that the atmosphere of our globe is composed of three ingredients, namely oxygen, carbonic acid gas, and azote; and they have satisfactorily shown us many curious properties of the two first, but they seem to have almost forgotten that to denote the remainder of the atmosphere by the term azote is a mere covering for ignorance. When we recollect the infinitude of chemical and mechanical changes which are constantly taking place upon the earth's surface, common sense at once informs us, that this azote, this *caput mortuum* of chemists, must necessarily be composed of a vast many things; and it appears to me exceedingly probable, that the various admixtures and decompositions of these things, together with the electric states, heat and density of the air, may be concerned in the production of those atmospherical constitutions in which epidemical distempers rise or decline. At all events, it is desirable, that we should endeavour to analyze that curious compound called azote, by ascertaining the many subtle particles mechanically suspended in it, and the many

gaseous effluvia with which it must be mixed, since from such an analysis some new light might possibly emanate. If we also endeavoured to note in conjunction, more narrowly than has yet been done, the fluctuations and influence of the winds, the air's range of temperature and density, its comparative dryness or moisture, with the electric conditions both of the earth and atmosphere where epidemical diseases rage, perhaps we might at last penetrate into some of the secrets of that dominion which the elements exercise over us, and might even be enabled to narrow its influence; as from having ascertained the state of things, under which intermittent and remittent fevers arise, we have lessened their frequency by the draining of marsh land, and even considerably limited the extent of various contagions by having ascertained that their activity depended upon certain circumstances of concentration, and that they might be rendered innoxious by ample dilution with fresh air. Some able authors, however, seem to me to simplify the subject of contagion too far when they assert in unqualified terms, that a person can never be infected from the sick but within the distance of a very few feet; for, notwithstanding what happened long since at certain assizes, I have met with some facts which would prove, that contagion can occasionally pass the narrow precinct which has been imposed, and, like marsh effluvium, maintain its power for a time in a partial current of wind.

Whenever fever is ushered in by any thing like a cold stage, local inflammation is the effect of the subsequent excitement, and its seat is mostly determined by the previous state of the organ attacked; so that if several individuals were exposed to the same general shock, the brain might suffer in one, the lungs in another, the stomach in a third, the liver in a fourth, and so on, according to the respective conditions of these parts at the time when the exciting power was applied. The causes before enumerated in the common continued fever are well known, in the varied phenomena which they produce, to lead to inflammations of the viscera; and if we consider the prox-

imity of the brain to the heart, and its abundant supplies of blood, we cannot wonder to find it fully as liable as other viscera to inflammation. Indeed if it were not for provisions in its arterial and venous apparatus it would probably be more liable to inflammation. The carotid arteries, on entering the skull through their canal, suddenly change from the perpendicular, and make an almost horizontal turn inwards. After having left the canal, they again change their course, proceeding upwards and forwards by the sides of the sella turcica, and at the anterior clinoid process, make a third turn obliquely backwards and upwards. The vertebral arteries are partly tortuous from some of the holes in the cervical vertebræ not being directly opposite; they enter at the foramen magnum somewhat similarly to the carotids at their canal, and form, with their branches, the circle of Willis, where there must be a collision of currents. These circumstances strongly guard the brain from sudden gushes of blood on great increases of the heart's action. But this is not all in the way of precaution. The branches of the arteries are not, as in other organs, at once ramified through the substance of the brain, but distributed minutely through the pia mater, from which as from a protecting medium they are transmitted, in the form of infinitely fine capillaries, into the proper brain; and, as if still more effectually to provide against the chances of pressure, the brain has numerous convolutions, into which the pia mater conveniently dips, and which of course afford considerable space, without disturbing the brain, for certain degrees of vascular distention in that membrane. The venous circulation of the brain is equally curious, for the veins are not, as in other organs, ramified through its substance along with correspondent arteries, but they are gathered into the pia mater as into an intermediate network, from which they convey the venous blood into the sinuses; and the sinuses themselves are really outside the brain, so that the interior of that organ is most remarkably protected from disorders of venous circulation, which literally only take place in the pia mater, or in the sinuses, where so much room is prepared for temporary disturbances.

One office of the brain appears to consist in the concentration of impressions from the sentient extremities of the nerves, and therefore general shocks are apt to effect some or all of its functions, often in a manner which we are at present wholly incompetent to explain. In modern times, however, no less than four aspiring authors,* have boldly attempted to solve the difficulties with respect both to certain disturbances of the cerebral functions and to fever, by assuming that inflammation of the brain is the cause as well of the former as the latter; but though it would be as reasonable to place the seat and cause of fever solely in any other viscus, yet certainly the brain is often consecutively inflamed, insomuch that sub-acute or acute phrenitis is frequently found to constitute an important part of the common continued fever. What has been called hydrocephalus internus is generally an inflammatory affection of the brain, and as this affection usually occurs, it may be considered a mere symptom or consequence of the common continued fever; but it may also arise in the progress of many other diseases, and hence I have sometimes found fluid effused into the ventricles of the brain, in measles, in scarlet fever, in typhus, and in hooping cough. It is a great mistake to suppose, that hydrocephalus internus is confined to children, for I have met with it in patients of all ages, as the result of an inflammatory state of the cerebrum, induced by various causes; (u) but unquestionably this disease happens oftenest in children, because in them inflammation of the brain most frequent-

* In 1785, *Medical Sketches* were published by Richard Pew, in which the doctrine is distinctly laid down, that fever depends upon inflammation of the brain. Many years afterwards, in consequence of the publication of Dr. Clutterbuck's able treatise, Dr. Beddoes made us acquainted, that Plonquet had taught a similar doctrine; and latterly, the enlightened Editor of the *Journal of Foreign Medicine and Surgery*, has shown us, that this was the avowed opinion of Marcus.

(u) We are inclined to believe that the inflammation in hydrocephalus is seated in the *substance* of the brain, in which circumstance it differs from phrenitis, the inflammation in this disease, being seated in the membranes.

ly does not destroy life until effusion has taken place, whereas in adults inflammation of the brain most frequently does destroy life before effusion takes place. This difference often necessarily modifies the character of the disease as presented in children and adults. Viewing hydrocephalus internus as an inflammatory affection of the brain, it occurs under two varieties, one in which the local irritation is established first in the brain, another in which it is established in the chest, belly,* or even of some external part; and the distant irritation primarily increases the heart's action, which disturbs the circulation of the brain where that organ is at all predisposed to disorder, just as it would disturb the circulation of any other part similarly predisposed. This is the true explanation of most of those diseases, whether chronic or acute, which are technically said to arise from the sympathy of one part with another. If an irritation be established, no matter where, sufficient to disturb the heart's action, that disturbance of the heart in its turn implicates the weakest organs by sending unusual quantities of blood to them, by which their circulation becomes disordered. Those physiologists who would wish to persuade us, that the heart is but little under the influence of the nervous system, have only to attend to the phenomena of many diseases to be convinced of their error: for no irritation of consequence can long exist without operating on the heart, and as that is the only moving power in the body, every change in the force or frequency of its action must necessarily influence other parts, with which it is so inseparably connected by arteries and veins; and if the circulation of any of those parts had previously or even simultaneously acquired a tendency to disorder by some interruption, distention, or diminution of tone, there the topical disease will be palpably developed, there the circulation, in fine, will be most signally disturbed.

* Dr. Cheyne and Dr. Yeats have shown, in their enlightened productions, how often hydrocephalus internus follows disorders of the abdominal viscera, and other practitioners have published many facts illustrative of the same point.

There is however, one form of hydrocephalus internus which is not inflammatory, and which cannot be explained on the law which has just been laid down in reference to irritation; and as this form of the disease appears to have escaped the observation of those who have expressly written on the subject, it shall be concisely noticed in this place, being connected in fact with the primitive symptoms of fever. The child of an able medical friend became somewhat heavy and indisposed, and as it had formerly had serious indications of cerebral disease, the father was alarmed lest they should return, and on this account at once applied a few leeches to the temples, and opened the bowels by a brisk purgative. The next night I saw the child and except that the face was a little pale, the tongue a little white, and the appetite impaired, it appeared tolerably well, the pulse and heat of the skin being nearly natural, and all the great vital regions free from uneasiness. Mild laxatives and an antiphlogistic regimen were enjoined. During the night vomiting came on, and on the following morning early, I received an urgent message to visit the little patient immediately. Not having anticipated any mischief, I was shocked to find the child apparently in the collapse of death. The face and whole surface were as pale and cold as marble, the pulse a mere undulating, small line, the respiration short, weak, and irregular, the eyes fixed in a staring insensibility, and the muscles of the face and fore-arms occasionally convulsed. As the main object then seemed to be to restore the animal heat to a natural state, the child was immersed in a warm bath, afterwards wrapt in warm blankets, while warm diluents were diligently administered, with a very small portion of wine now and then. These means, with light support afterwards, removed the immediate threatenings of death, but the pulse still remained exceedingly oppressed, and the animal heat could not be raised to the natural standard over all the surface. In this state, a marked squint came on, the pupils grew dilated, and gradual but at last complete deafness and blindness, with an apoplectic oppression, supervened; yet all this time the pulse remained very feeble,

and the skin cool, and it was only a short time before death, that re-action was emerged, from the irritation of the wreck previously effected. On examining the body, the viscera of the abdomen and thorax were perfectly sound: about three ounces of very thin serum were found in the lateral ventricles of the brain, without any vestige of inflammation. This was an extremely urgent case, but I have seen others similar in their nature, though less violent in their degree, and in all of them the symptoms of cerebral effusion came on when the skin was cool and the pulse oppressed, the febrile re-action having only appeared a little before death. Infants in arms are sometimes liable to such sudden attacks, when exposed to a chilling atmosphere, and they are then supposed to die from those convulsions which occur as a consequence of the disorder in the brain. The disease here spoken of is strictly one of venous congestion, and the effusion into the ventricles takes place from the capillaries, just as we see in an extremity when the return of venous blood is interrupted by compression. It has lately become the fashion to consider dropsical effusions as the result of inflammation, and certainly they are often connected with that condition; but there is one order of dropsy which arises from fulness of the venous system, influenced by the heart's action, of which the above case of hydrocephalus internus is an example in point.*

* The heart's action is still one of the most interesting subjects to investigate in physiology and pathology, and as it is intimately concerned in the rationale of the diseases immediately under discussion, I shall advert in this note to some positions which were formerly laid down in my treatise on the Scarlet Fever; though I did not know at the time, that one of them, respecting the power which circulates arterial and venous blood, had been anticipated by Dr. Carson, an ingenious physiologist, whose labours have not yet been estimated sufficiently high. 1. The auricles of the heart do probably not contract, like the ventricles, but would rather appear to be designed as reservoirs of blood in order to keep up a regular supply for the correspondent ventricles; the dilatation of the latter being adequate to draw the blood from the auricles, which, if they had contracted after the manner of the ventricles, would surely have driven the blood into the descending cava on the right side, and into the pulmonary veins on the left. 2. Each ventricle of the

Dropsical effusions may take place from the supply of blood by the arteries being so great that it cannot be duly returned by the veins, and this appears to be the case in those acute instances hydrocephalus internus, where the heart's action is greatly increased: they may also take place where the sum of

heart performs the office of a foreing, and also of a sucking pump. 3. The contraction of each ventricle represents the foreing power by which the blood is driven out of the heart. 4. The dilatation of each ventricle represents what is popularly termed the sucking power, by which a vacuum would be formed in each ventricle but for the rushing in of the blood of each auricle from the air's pressure, as there would be a vaenium in a common syphon but for the rushing in of the water from the same cause. 5. The circulation of arterial blood is carried on by the foreing power of each ventricle indirectly assisted by the arteries; but the arteries themselves generate little or no mechanical power, and only expend the power which they had received from the contraction of the ventricle, in forcing by *re-action* the blood forward from the valves of the aorta; as a strained spring in recoiling gives out the power, to any thing attached, that it had received from their force to which it previously yielded. Some experiments were made, by a late physician of splendid talents,* by which it appeared, that the arteries, when laid bare, did not recoil from the stroke of the heart, which is the sole cause of the pulse, in the manner above mentioned; but an artery laid bare is not an artery in a natural state, and from marking that at the wrist and other places in emaciated subjects, I am persuaded that a dilatation and a recoil do actually take place; though both the arteries and the veins seem also to possess, from their proper irritability, the quality of accomodating their capaeity to the quantity of their contents. 6. The blood in the veins of the general system and in those of the lungs is circulated by the dilatation of each ventricle, by the pressure of the atmosphere upon the veins, and perhaps by the hydrostatic law of fluids finding their own level, aided by the *vis à tergo* of the heart and arteries. 7. The circulation of lymph and chyle is carried on, not by any species of capillary action or of contractility alone, but, principally, if not entirely, by the dilatation of the right ventricle of the heart, and by the pressure of the atmosphere, as in the case of the venous circulation; for a direct communication is opened between the right ventricle and the thoraeic duct, through the connexion of the descending cava with the jugular and sub-clavian veins, where the absorbents terminate, and where they pour their contents into the stream of venous blood, as it proceeds directly to the

* Dr. Parry of Bath, the author of one of the best works on Pathology which has appeared in modern times.

secretions by the arterial capillaries is over and above the sum of the absorption by the lymphatics, and this appears to be the case in those acute, sub-acute or chronic inflammations of the serous membranes which lead to hydrothorax or ascites ; and, lastly, dropsical effusions may take place either from too super-abundant load of blood in the venous system owing to a deficiency of force in the contraction and dilatation of the heart, or from some local obstruction to the free return of the venous blood. The first two species of dropsical effusions, arising from an increased action of the heart, or from a disturbance in the capillaries of secretion, comprehend those forms of dropsy which require evacuations to be removed, the effusion being the effect of an inflammatory condition ; but in the last species, the treatment requires to be more varied, for the deficiency of action in the heart may proceed from mere oppression or real exhaustion, and the local obstruction may proceed from some functional or from some organic obstruction. The circulation of the venous blood is carried on by the forcing power of the left ventricle, and by the sucking power of the right ventricle of the heart, which is also the chief if not the sole cause of the circulation in the absorbent system, so that in fact the heart is the moving power of all the fluids which circulate in the body. That the forcing power of the heart extends from the arterial to the venous system appears to me quite obvious ; for whenever the heart's action is increased, then the current of blood

right ventricle. The common theories respecting the circulation of lymph and chyle are most vague and unsatisfactory, but the law here pointed out will be found competent to account for the phenomena : and where the mechanical structure is obviously fitted for the purpose, should we not rather apply a known principle, than the mere subtleties of abstract speculation ?

† My respected and ingenious friend Mr John Grimshaw, who is an excellent mechanician, thinks, that he shall be able to construct a machine which, in particular, will show how the blood circulates, and how the lymph and chyle are absorbed upon the principles here advanced.

from a penetrated vein is increased, and where the action has been very excessive, I have known the blood come out in jets. If the forcing power of the heart extended thus far, why it may be asked do not the capillary arteries pulsate, since what is called the pulse is merely the stroke of the heart! That the capillary arteries do not *evidently* pulsate is granted, but the admission is nothing against the main argument. The stroke of the heart in the larger arteries which pulsate operates upon a quantity of fluid tangible by our senses; but the stroke of the heart is so infinitely divided in the capillaries as not to be tangible by any of our senses. If I were to throw a drachm weight against any one with a given force, its impulse would be felt distinctly; but if than drachm were divided into ten thousand parts, and if any of those parts could be thrown with the same force, its impulse would not be perceptible; and a similar mode of reasoning might be applied to the stroke of the heart as compared in the larger and in the capillary arteries. Yet it seems to me, that the forcing power of the heart would alone be incompetent to carry on the circulation of venous blood, and as some moving point would still be wanting for the circulation of lymph and chyle, the dilatation of the right ventricle is admirably calculated, on the admitted principles of mechanics, powerfully to assist the venous circulation; and in fact wherever we find evidences of a defective dilatation of the heart, there we find accumulations of blood in the venous system, and sometimes signs of an interrupted flow of lymph, as in the enlarged glands of the absorbent system, with an effusion of fluid into the cellular tissue. But if the dilatation of the right ventricle of the heart be the cause of the circulation of venous blood as well as of lymph and chyle, how could the blood and these two fluids rise when the cava descendens and the thoracic duct are tied, so as to cut off all communication with the heart? For the sake of argument, this, an experiment which has been made, shall be admitted as a fact to the fullest extent, and yet affords no valid objection. It is a law, that a thing once put in motion would go on for ever if every im-

pediment were removed, such as the resistance of surrounding bodies, friction, and the like. It was upon this principle Sir Isaac Newton supposed, that the tides would continue to ebb and flow for some time afterwards, if the moon and the sun were annihilated ; and indeed we have a familiar example of the continuance of motion when the first cause had ceased to operate, in the current continuing to flow at the distance of some miles up, while at the same moment it is ebbing at the mouth of the river. The full elucidation however of the above opinions respecting the heart's action would lead me into too long a digression ; and I have only alluded to them in order to show that some recent authors have simplified the pathology of dropsy too far ; but perhaps at a future opportunity I may resume the subject in all its bearing, at considerable length, for I am certain, that a more minute attention to the venous and lymphatic circulation would open out many new and interesting views both in regard to physiology and pathology.*

Under its ordinary characters, apoplexy may be regarded as closely allied to those examples of the common continued fever in which the brain is so implicated as to lead to the secondary affection denominated hydrocephalus internus ; for in truth apoplexy is only more acute in its nature, and either depends upon venous congestion in which the heart's action is oppressed and the heat irregular, or upon arterial fulness in which the heart's action and the heat are increased. It ought therefore usually to be considered as a variety of febrile disease, the rapid progress of which prevents the common series of symptoms, when it is highly congestive in the one case, or highly excitatory in the other ; though there are most frequently distinct signs of cerebral disturbance, before that decided and overwhelming shock which nosologists have erroneously set down as the sole indication of apoplexy. That form dependant upon venous congestion is usually ushered in by a degree of chilliness, atten-

* If the foregoing doctrine be correct, it necessarily follows that the veins absorb, an ancient opinion which some recent experiments have rendered almost certain.

ded with a pale face, oppressed pulse, general agitation, deep uneasiness in the head, sickness of the stomach, and great loss of muscular power. Again that form dependant upon arterial fulness, is usually ushered in by fulness, and flushing of the face, glaryness or redness of the eyes, strong bounding pulse, and a hot skin, while the patient is apt to complain of tightness about the throat, and nearly always has deep pain and throbbing in the head, with feebleness of the lower extremities. The apoplexy of venous congestion may arise in spare and lax as well as in gross and plethoric habits, from cold applied to the surface, from too full a meal of indigestible food, from hepatic obstructions, or from some pernicious ingredient having been taken into the stomach. Occasionally I have seen it follow immersion in the cold bath in old or debilitated subjects; and I have reason to believe, that those persons are attacked with this disease who sink in the act of swimming from what is called the cramp. Several instances have come under my care which proceeded from irregularities of diet, and some of them occurred in children, who had been allowed to eat too much fruit with the rind or husks. The apoplexy of arterial fulness may be induced by any cause which impels the blood towards the brain by inordinately exciting the heart; such as strong mental emotions, stimulating drinks or diets, isolation, excessive heat or exercise, or intense study; but it sometimes happens that this species immediately arises out of the former, the appearances of venous congestion giving place to an impetuous excitement of the heart and arteries. Indeed most of those cases of the common continued fever in which the cold stage is followed by a hot stage, and that again by a gradual oppression of the brain at last amounting to coma, might often be justly denominated protracted examples of apoplexy.

If a considerable number of persons were to sicken after an exposure to a bleak variable atmosphere, or to any other cause which produced chilliness first the various gradations of venous congestion and of arterial fulness in the brain might be traced among them; but though the brain would be similarly affected

in several where the febrile re-action was developed, yet in others topical disease would be seated in the chest or abdomen, sometimes with, and sometimes without an affection of the brain. In all those examples where re-action was thus developed with local disturbances, the disease might be pathologically considered essentially the same, the general excitement termed fever, and the topical disorder termed inflammation being their true and declared pathognomonic signs. Nosologists however have thought differently, and under an order denominated phlegmasiæ, we have many topical disorders arranged, one by one, according to the organ inflamed, while the inflammation of that organ is assumed to be the cause of the fever, which has therefore been called symptomatic. Let us examine this opinion, in order to ascertain when inflammation stands in the relation of the cause, and when of an effect to fever; and this is really the more necessary at present because many ingenious men, overlooking the primary phenomena, have mostly reasoned from symptoms merely consecutive in the series of accession.

What we generally understand by the term fever, is an increase in the action of the heart, accompanied with an evident increase of the animal heat. Now this state may be induced in three ways, namely, first by some general shock occasioning internal accumulations of venous blood, which in their turn rouse the heart into increased action, and finally augment the heat; secondly by some local disturbance or irritation, which, from that known but inexplicable connexion between the nervous and vascular systems, operates on the heart, and thereby increases its action and the animal heat also; and lastly, fever may be induced by some stimulus which at once, from its impression on the nervous system and thence on the heart, raises the pulse and the temperature to an unnatural height.

Most of the fevers of this, and of other climates like our own, arise from some general shock, which first occasions venous congestion, and that again the arterial excitement which follows. All contagious, marsh effluvia, and the vicinities of

the weather, mostly acting this way. Hence the first symptoms are a diminution in the action of the heart, and a diminution of the animal heat, or what we call the cold stage; now inflammation does not and cannot exist in this stage, all the phenomena of which are directly opposed to inflammation. Whenever this stage occurs, therefore, inflammation is not and cannot be a cause of the fever—in a word, it is the effect of a subsequent condition now to be noticed. The cold stage could not continue without the destruction of the body, and the hot stage is its natural cure. In the cold stage, the blood has retired from the superficial into the deeper seated veins, and from these again into the grand venous reservoirs of the interior; so that it is especially accumulated about the right side of the heart and its larger vessels, by which its return is impeded, less or more, from all parts of the body. This preternatural accumulation of venous blood disturbs the heart, which is also further oppressed by the deficiency of one of its natural stimulants, one of those powers which keeps it in motion—the animal heat. But as the blood is also a natural excitant of the heart, it generally stimulates that organ into increased action, and hence the hot stage is brought about, that stage in which the fever has a character of simple excitement, or is combined with topical inflammation. In a fever of simple excitement the blood is so equably distributed throughout the arterial system, that it cannot be strictly said to be super-abundantly accumulated in any part; but in a fever of inflammation, into which that of excitement is liable to pass, the blood is so super-abundantly accumulated in some parts as to destroy the balance of the circulation, and materially to disturb the functions of the part thus specially affected. In what have been denominated idiopathic fevers, it often happens that for some time no organ is decidedly inflamed, a circumstance which has probably given rise to their appellation; but in their course some organ is often so insidiously implicated, from the maintenance of the increased action of the heart, that the topical disorder is obscured by the diminution of the general sensibility. In other

instances where a cold stage has preceded, the topical inflammation appears very early after the increase of the heart's action, and then it is so prominent a symptom as to have been mistaken by nosologists as the cause of the fever, though it is as truly an effect, in such examples, as any other concomitant of the hot stage; and the seat of that inflammation will be found to be varied either according to some peculiarity in the exciting causes by which certain parts suffer more than the rest, or by the local and latent weaknesses in the subjects attacked, by which the circulation of the brain is disturbed in one, and that of the lungs in another, and so forth, as already intimated. In the cold, in the primary stage of such affections, when the reduction of the animal heat and the feebleness of the pulse are the characteristic signs, there is sometimes no topical pain, but in other instances it does exist; and that pain is then the result of those venous congestions which are dependent upon the diminution of the heart's action and of the animal heat, and which are combined with a state of the constitution directly opposite to that existing in the disturbance of the arteries known by the name of inflammation. On many occasions, we know from the nature of the exciting cause what parts will suffer, as the throat in the scarlet fever, and the mucous membrane of the nose, in the muscles, and besides such topical disorders, contagious have a peculiar influence on the whole nervous system, probably from the changes which they induce in the blood. In general, however, we can trace the topical affections to previous weakness of the patients, which though they had not amounted to disorders when the circulation flowed with its natural calmness, yet became so when the circulation was agitated, from the blood being there most interrupted in its course. Hence it is that certain habits predispose certain organs to disease, as spirituous potations the stomach and liver, intense study the brain, bad water the bowels, and so on; and hence, too, the influence of hereditary peculiarities of structure, and the liability of organs to a return of the same disease under which they had formerly laboured. The idea which we have of a cause is, that it is an anteced-

dent, and of an effect, that it is a subsequent ; and as in those fevers ushered in by a cold stage, inflammation is not a primary, but a secondary event, of course it follows that it does not stand in the relation of a cause, but of an effect to the fever.

Local irritation induces fever by increasing the heart's action, through the intercourse which exists between that organ and the nervous system. Thus I have known a blow on some external part first create local irritation, and then excite the heart, and this excitement produce, on the principle above explained, inflammation of some internal organ ; and thus also I have known internal inflammation to follow the local irritation produced by a surgical operation, a consequence by no means uncommon. Local affections, however, are not always followed by fever in this manner, the fever being partly the result of a general shock accompanied with venous congestion ; and that fever in its turn, so far from being symptomatic of inflammation, as is currently supposed, actually produces the inflammation in the part where the injury had been inflicted. When what is called inflammation arises without a preceding excitement, it is generally produced by some irritation, as when a blister is applied to the skin ; and this strictly primary species of inflammation, according to its degree, may or may not be accompanied with constitutional disorder, with that increase of the general heat and of the heart's action so frequently mentioned. The inflammation, therefore, may be a simple disturbance in a part as unconnected with fever, or it may be a complicated disturbance in a part as connected with fever ; but whether in both cases the local affection be exactly the same yet remains problematical, as it has been considered precisely the same, rather from analogy than from minute observation. It would indeed be important to be informed what state of the vessels it is which constitutes inflammation. From cautiously marking the phenomena of an external inflammation it appears to me, that three things occur in the vessels implicated directly and indirectly. In the first place, red blood

circulates in capillaries which in a healthy condition only conveyed a colourless fluid ; in the second, those capillaries which did circulate red blood before, are now preternaturally distended with that red blood ; and in the last, the volume of the arteries leading to the part is increased. Why red blood should circulate in capillaries which before conveyed a colourless fluid, why the capillaries which circulate red blood in health should now be preternaturally distended, and why the volume of the arteries leading to the part should be increased, are questions not easily to be answered, even allowing that these conditions really do exist in inflammation. According to my observations, no inflammation occurs without an increase of heat in the part, and this, with redness, is one of the phenomena noticed as the most constant by authors. Now an increase of heat must necessarily expand the fluids contained in the vessels, and this expansion must of course augment the capacity of those vessels, so that they may actually contain more blood than in a natural condition ; and the increase of volume in the arteries leading to the affected part may be in some measure explicable on the same principle, though the blood probably accumulates in them from not being freely returned by the veins from that part. The action of one artery I have never known greater than that of another, and what we call increased action is, I suspect, merely increased accumulation, and what we call increased determination is, I also suspect, merely an increased volume of the vessels arising from an impediment to the return of the blood from the quarter to which those vessels lead. Increased secretion, so common an attendant upon inflammation, is no proof of an increased action, is no proof that the arteries of one part re-act more frequently than the arteries of another part. If the capacity were increased, the augmentation of the secretion might be the result of that increase of capacity ; as in two tubes of different dimensions most fluid would pass through the larger, if the forcing power connected with both were the same, and in the human body, the heart is that forcing power. One of the ancients made action every thing in oratory, and many of the moderns would seem to make it every

thing in pathology, for action, a change of action in the vessels solves every difficulty, by being made as various as the occasion may require. In truth the action of arteries is exceedingly limited, consisting of a correspondence to the action of the heart while they maintain their irritability, and that irritability consisting in a power of accommodating themselves to their contents; but in the numerous changes which inflammation induces in the same and different tissues, no doubt can exist, that the vital functions referrible to the nerves, and the chemical functions referrible to the fluids, co-operate with the functions of the heart and the vessels, which are chiefly mechanical.

The third and last mode in which fever may be induced, is by the direct application of a stimulus not sufficient at once to inflame any particular part, but to excite the heart into increased action, and the heat of the body beyond the common standard; and hence fever may arise, without the intervention of a cold stage, from exposure to an elevated temperature, from the use of ardent spirits, wine, or the like, from strong mental emotions, from rich food, and from excessive exercise. Scarce-ly a summer has passed over without my having witnessed at-tacks of this nature from the direct or indirect influence of the sun, and I have seen several at every season of the year from intemperance in drinks and diets; but whatever may be the stimulus applied, the local affections, which are so apt to supervene, may generally be traced to the increased action of the heart operating on local predispositions as already explained, and these predispositions chiefly vary according to climate, habits, and hereditary structure. Concerning the influences of each of these circumstances on the different tissues we have not a sufficiency of data for generalizing the subject of predispositions; yet many interesting particulars are scattered in various places, which if concentrated might reflect much light on this apparently obscure department of pathology.

CHAPTER III.

EXTERNAL AND INTERNAL

INFLAMMATIONS.

IN the common systems of nosology, and of the practice of physic, no notice has been taken of the sub-acute forms of visceral inflammation, the descriptions relating to the acute and palpable forms. This has always appeared to me a serious omission, which has probably been the occasion of fatal errors. Many young practitioners are only taught by the loss of patients, that inflammations of the viscera may proceed to a mortal termination, without any of the strong and distinct symptoms mentioned in the methodical compilations of the day, as the constant and indispensable indications of such disorders.— The doctrine of an acute, a sub-acute, and a chronic inflammation might be extended to numerous affections of the viscera; but as we are only concerned with the two former species in this place, and as I have given some illustrations respecting the last in a recent publication, the few observations about to be made shall be confined to the treatment of the acute and the sub acute forms of inflammation.

In regard to the treatment of what are called simple inflammations of the viscera, little more will be required, than to

show in what their treatment differs from those complicated with genuine typhus. The principal difference in the curative plan lies in this—that in common inflammations, depletion may be carried further in the onset, as they are generally more intense than those complicated with typhus; but in both, the same rules are applicable to the advanced stages when universal collapse is approaching; and in both also evacuations may be advantageously employed at a later period in the sub-acute, than it can possibly be in the acute form.

If it were fair to draw a conclusion from the facts which have come within my observation, I should say, that it is a pretty general error among us, the practitioners of England to bleed too frequently in the progress of inflammatory affections, and yet without sufficient decision. By drawing blood repeatedly, at long intervals, with regard rather to some precise quantity than to any immediate and particular effect, the strength of the patient is too frequently exhausted, while the inflammation still proceeds unimpeded to its fatal termination. Yet the efficacy of venesection does not depend upon the quantity of blood drawn, but upon the effect produced. However indecisively the major part of us in this country may recommend the lancet, some late authors of note appear to me to have employed it with too daring a hand, as if the whole chance of recovery was in the abstraction of as large a portion of the vital fluid as possible in a given time. It is difficult, nay impossible, to form any rule, respecting the quantity of depletion, that shall be applicable to all the various examples of particular diseases. Two cases of abdominal inflammation lately came under my care, in which the symptoms were nearly alike. The subject of one of them was a robust man, who on the first day of the attack was bled to the amount of twenty-five ounces, which produced syncope, and for a time apparently arrested the inflammation; but it returned on the following day, when about twenty-five additional ounces were drawn, and with the same effect as before. On third day, however, the symptoms of abdominal inflammation again became urgent, and forty ounces

of blood were now taken away, before faintness occurred: but this last bleeding was effectual, and the patient recovered very well, though slowly on account of the very copious depletion. The subject of the other case was a young lady, neither remarkable for strength nor delicacy. Soon after the first attack, eight ounces of blood were taken away, which produced syncope, and a marked remission of all the symptoms: yet on the following morning, there was an obvious return of the abdominal inflammation, for which about eight ounces more were abstracted. This second bleeding caused a long continued faintness, but on recovering from it, the patient expressed herself completely relieved, and from that time rapidly regained her strength and health. Now here were two instances of an equally alarming nature, one of which required ninety ounces of blood to be drawn for its removal, whereas the other only required sixteen. It must therefore appear evident, that the imposition of any arbitrary measure is not to be relied on in inflammatory diseases, since the practitioner should be guided by the effect, rather than by the amount of blood abstracted. Half measures are always to be condemned in the commencement of highly sthenic disorders: if they should even break the force of the inflammation, which is hardly to be expected, they will generally leave a subdued degree of it; and thus indirectly lead to chronic derangements of structure, or to serous effusions, if such membranes as the pleura and peritonæum be affected.

It is not perhaps possible to form a correct and general rule as to the time that venesection ought to be repeated in common inflammations. In those of an acute nature, if the first bleeding should not give a marked relief, the second should not be long delayed. It has been customary with me for some time, to wait half an hour, or even longer, with the patient after the operation, to see its full effect, not only upon the pulse but upon the local affection and the general habit. If in that short period, I could not perceive a manifest change for the better, I have generally ordered the arm to be re-bouud, and

permitted the blood again to flow, until the pulse fluttered beneath the finger, from approaching faintness. And at this second bleeding, when the blood has not issued in a full stream from the orifice first made, I have never hesitated a moment to recommend the opening of another vein, that it might be taken away as rapidly as possible, to induce that temporary collapse of the system, so super-eminently serviceable in all inflammatory diseases. Where faintness or syncope has occurred after its use, moderate bleedings have appeared to me quite as beneficial as large ones followed by one or the other of those effects. But where large bleedings have been followed neither by faintness nor syncope, they have not by any means appeared so beneficial as moderate ones producing either of those states. It may perhaps, therefore, be a desideratum to inquire, whether any new mode could be discovered of inducing faintness or syncope by moderate losses of blood, in inflammatory diseases, that the strength of patients might be saved as much as possible. Under the present practice, we are often compelled to draw considerable quantities of blood by the lancet before we can attain our object: but as I have found on numerous trials that faintness can generally be induced by moderate losses of blood from the application of leeches, so I would recommend this practice wherever it is an object to save the strength of the patient; though in all cases of an urgent nature general venesection should be employed first, and the local bleeding afterwards as a decidedly useful auxiliary. It is a common opinion of the vulgar, that the *first bleeding* is always beneficial in inflammations. Now it is well known that most persons faint the first time they are bled; and on this account there may really be some foundation for the truth of this opinion. But what has been said about the efficacy of faintness or syncope in inflammatory diseases, must not be extended to those of a truly congestive nature, in which bleeding should hardly ever be continued until such an effect occur.

The quantity of blood which I have ordered to be taken away at once in ordinary acute inflammations has varied from

eight to forty ounces. Yet in common, I have seldom extracted less than sixteen ounces at a time, and very rarely more than thirty. Indeed in nine cases out of ten, which have come under my own eye, faintness or syncope has appeared before the last mentioned quantity has been extracted; but then I have always endeavoured to accelerate one of those effects, by the means specified in the cure of the inflammatory typhus. Some authors, I know, coolly talk about drawing fifty, or even more ounces of blood at one time. This certainly may be sometimes done in the acute cases of this country, and often in topical climates, where the excitement of febrile diseases is so impetuous. But, waving all considerations as to its general practicability in this country, such excessive depletion at one time is only justifiable in some extreme cases. On a few particular occasions, I have ventured as far as forty ounces of blood at once, with great advantage to the patient; though I should by no means be partial to this as a general practice. In the course of my experience, I have occasionally observed, that where blood had been so very copiously drawn at one time, it either produced a state of universal collapse, from which the system never rose again, - or was succeeded by indications of violent excitement of the heart and arteries, attended with much nervous irritation. It is also remarkable that on examining the bodies of some patients who had lost great quantities of blood in this way, I found much congestion in the veins of the brain and liver, with more or less effusions of serum in some of the cavities.* Yet a little reflection will easily explain these appearances. When patients are bled to so excessive an amount, as greatly to impair the energy of the heart and arteries, the natural balance between the arterial and venous system cannot be maintained afterwards, and there is consequently a preternatural accumulation of blood in the veins. When bleeding,

* Dr. Seed has recently published, in the first volume of the Medico-Chirurgical Journal and Review, some most interesting experiments on excessive blood-letting, the results of which coincide with these observations, and which, independently of that, deserve the highest consideration.

therefore, is carried beyond a certain point in inflammatory diseases, it may actually occasion a state similar to that which it was intended to remove, though the congestion will be seated in different vessels, and attended with an irretrievable collapse, and sometimes with effusions of serum.

These hints are not thrown out to terrify the medical student or practitioner, but to guard him against those extremes, into which the best and wisest of men are sometimes hable to run. The experience of every year, convinces me more and more of the great superiority of promptly applying decided measures in the beginning of acute diseases, instead of wasting the most precious moments in feeble, secondary, and often renewed attempts, which generally end in the disappointment of the physician, and the death of the patient. All the most efficacious means should then be made to bear directly on the disease in a short time, and afterwards the mildest measures should be adopted, that nature may be allowed to renovate chiefly by her own powers. Bleeding general and local is certainly the first in the order of remedies, and purgatives the next. When these have produced their influence, blisters near the part affected, and the speedy saturation of the system by calomel, combined with opium, will mostly complete the cure. The united or successive impulses of a few powerful agents such as these, will not weaken the patient more than may be absolutely necessary for the reduction of the inflammation, provided they be not carried further than prudence, or the exigency of the case may require.

Some practitioners hesitate about bleeding in the very onset of acute visceral inflammations, deceiving themselves with the vain expectation, that such expedients as purging and blistering will finally succeed. And when an alarming increase of the symptoms has awakened them from their delusion, they begin to bleed again and again, till at last exhausted nature sinks as much from an excess of evacuations, as from the original disorder. The loss of many inestimable hours is not to be repaid by such indiscriminate rashness. If the inflamma-

tion has advanced far, the tone of the general system will be proportionably subdued, and the medical attendant ought then deliberately to pause as to the measure of depletion; for the life of the fellow-creature committed to his trust may entirely depend upon its being exactly suited to all the delicate relations of the case. Under such circumstances, small general bleedings will at all times be preferable to large ones; and where any thing like a state of collapse may be justly apprehended, local blood-letting and blisters should be preferred. Yet if there be one remedy more calculated than another to repair the ravages made by delay, it is the conjunction of calomel and opium, which will often tend to arrest, if any thing can then arrest, the topical affection. This combination, however, requires to be given with great care at such a crisis. As much calomel ought to be exhibited as will render its speedy influence on the system probable, and as much opium as will restrain it from passing off by the bowels and calm the general irritation.

In common febrile disorders attended by topical inflammations, there are usually three stages similar to those of typhus. The first is marked by a retrocession of blood from the surface, and a consequent congestion internally. This stage, however, is generally of very short duration, and is not in an exact ratio, even as to degree, with the consecutive one of excitement, in which the local pain, quick pulse, and increased heat, are the most conspicuous phenomena. In the acute forms of inflammation, the stage of excitement is generally of short duration, sometimes terminating in less than twenty-four hours, and seldom exceeding more than three days. Its natural tendency is to produce universal collapse and derangement of structure, which are the most essential parts of the third and last stage, in such affections. It must therefore, be evident, that in all acute inflammations of the viscera, the time is very limited in which decided depletion can either be useful or admissible. This, however, is not the case with those visceral inflammations, which assume the sub-acute character;

for in them evacuations may often be employed with advantage, several days after the commencement of the inflammation. The distinction, then, between the acute and sub-acute varieties of the inflammation, must be of very great practical importance ; and it is much to be lamented, that it has been disregarded by systematic writers, whose descriptions and directions have great influence over the young and inexperienced members of the profession. But in addition to what has been previously advanced, it is hoped that the following case and remarks will contribute to elucidate the pathology and cure of sub-acute inflammations of the viscera.

In December, 1814, a married lady, about thirty-seven years of age, had an attack of erysipelas on one leg, extending up to the thigh. It soon yielded to topical bleeding by leeches, to purgatives, and an antiphlogistic regimen, but she remained weak, and being pregnant, an abortion succeeded. Notwithstanding, the patient exerted herself in getting abroad in the following month, though the weather was often very cold. On the 5th of February, 1815, she complained in walking of an uneasy sensation in the left side of the abdomen, which she described as a sort of dragging pain. Next day this uneasiness extended to both sides, and also round the back, the urine being passed with considerable difficulty. The symptoms not abating, the family surgeon was consulted on the 7th, who apprehended that there was a tendency to inflammation, and therefore took away ten or twelve ounces of blood from the arm, which greatly relieved the pain in the back, though not the uneasiness of the sides. A calomel bolus was afterwards administered, followed by the sulphate of magnesia, which freely evacuated the bowels, and brought away some scybala. The last mentioned cathartic was repeated on the 8th, and an action still maintained on the bowels ; but on account of a disposition to nausea, the effervescent draughts were substituted on the following day, and an opiate given at bed-time. The pulse which had previously raged from 90 to 120 in the minute, rose on the morning of the 10th to 148, and, the attendant sur-

geon suspecting some latent mischief, I was for the first time requested to meet him in consultation.

At this period, the fever was considerable, and though the uneasiness in the sides was not acute, yet it remained permanent, and was increased by pressure, motion of the body, or a full inspiration. Twenty-four leeches were applied over the integuments of the parts affected, and a brisk saline purgative exhibited. The patient felt somewhat better from this treatment, and the pulse fell to about 138 in the minute, and became rather softer. But, the pain of the sides continuing, twenty-two ounces of blood were taken from a large orifice, in the morning of the 11th, under the impression that an abdominal inflammation still existed. The blood drawn was much cuffed, and covered with a thick buffy coat. Two large blisters were afterwards applied to the sides, beneath the false ribs, and extending backwards towards the loins. The patient suffered greatly from the blisters, which were removed and dressed on the 12, at noon, when the pulse was 120 in the minute. She was much distressed with flatulence and retching throughout this day, and had a laxative enema administered, which relieved the bowels. The internal uneasiness of the sides was rather diminished, not being troublesome when the body was perfectly quiescent, but still becoming so on pressure, motion, or deep inspiration. At bed-time, twelve grains of calomel with two of opium were given in the form of a bolus; the first effect of which was distressing, or, as it was termed by the patient, *overwhelming*, and a profuse perspiration occurred during the whole of the night. But, at an early hour of the 13th the pulse was only 110 in a minute, and she felt tranquil and relieved, declaring that the last dose of the medicine seemed to strike at the root of the disorder. The perspiration continued throughout the greater part of the day. With a view of exciting ptyalism, twelve grains of calomel and three of opium were prescribed in three pills, one of which was exhibited at intervals of about six hours. She had some hours of sound sleep in the night of the 12th, and felt herself still easy the next

morning, when the pulse was 120 in the minute, and ptyalism obviously existed. The succeeding night was more comfortably passed than any during her illness; and from this time the uneasiness entirely left her sides, so that she appeared quite convalescent by the 23d of the month, though she was subject to spasms in her legs when she attempted to walk.

On the 25th the patient had some return of pain in one side, which continued unabated the subsequent day, and was then attended with increased heat of the skin, and hard quick pulse. We were decidedly of opinion, that it was adviseable to bleed again, especially as the strength of the patient had been considerably recruited during her former convalescence. Accordingly about twenty-seven ounces of blood were drawn, the bowels freely evacuated, and another blister applied to the side affected. On the 27th, she considered herself much relieved, and indeed had felt little pain since the bleeding, except in respiring deeply, but she complained of being very weak. Laxatives and the antiphlogistic regimen were continued, and she improved in every respect, until the 1st of March, when the pain of the side again returned, with hot skin and frequent pulse. The warm bath was now tried, but without the least relief. The pain and fever continuing to increase, general venesection seemed once more indispensably necessary, and about twenty-six ounces of blood were abstracted, before a sufficient impression could be made upon the pain and the pulse. Even during the operation she found herself much relieved, and a warm perspiration broke out after it, which, being encouraged, continued many hours. Dreading lest these repeated attacks of inflammation should leave a tendency to organic disease in the parts which had been effected, we considered it prudent again to prescribe calomel and opium; and ptyalism was a second time moderately established, by the 3d of the month, from which time to the 9th, the pulse continued to fall, and the pain entirely subsided. There was, however, some threatening of uneasiness in the abdomen on the 10th, but it readily yielded to the operation of a brisk cathartic. From

about the last mentioned period, laxatives and anodynes were alternately administered until the 25th, when the patient was so far recovered as to get into an adjoining room, and soon afterwards was able to ride out in a carriage. On the 21st of April, she was suddenly attacked with an acute pain in the chest, which extended to one of the shoulders, and was increased by a full inspiration. Yet this pain appeared to be entirely spasmodic, for it was greatly relieved by opiates, and soon afterwards wholly subsided, without leaving the least cough, or other symptom of pulmonary disorder. During the remainder of the year, this lady continued tolerably well, though she was not able to bear much exertion. When she had any sensation of returning pain, which was occasionally the case, she generally had recourse to the compound rhubarb pills, and a moderate dose of the Black Drop, (v) by which she was almost always quite relieved. She also continued to wear a warm plaster on the right side, which seemed the most liable to the return of pain. For some time she was now and then subject to dyspepsia, from which, and an occasional sallowish tinge of the skin, there appeared to be a tendency to irregularity or obstruction of the biliary secretions. On this account, she was recommended to remove to Harrogate, where she drank the sulphureous water with very good effect, though this did not entirely remove the disposition to bilious attacks. By persevering, however, in a light diet, and occasional laxatives, she in a great degree regained her health, and has since continued pretty well.

This case has been selected for the elucidation of the subacute inflammations of the viscera, because it is one of the most interesting of the kind that I have witnessed, and because the highly intelligent husband of the patient kept most accurate notes of its progress, from which the foregoing history has been extracted. It must have been perceived, that

(v) For the method of preparing the Black Drop, see Paris's *Pharmacologia*, Vol. II, page 251. New York 1823.

this lady had a peculiar tendency to inflammation. She was first attacked by an erysipelas, an affection which I have frequently seen followed by some inflammation of the internal parts. She had not recovered from the shock which this gave to her strength, when an abortion took place. The hemorrhage which accompanied this event, appears to have left the circulation in that vacillating, variable state, which not only always succeeds large losses of blood, but which powerfully predisposes to inflammation. In this state she was frequently exposed to a cold and changeful atmosphere, which was the exciting cause of the first attack of abdominal inflammation. When the system is weakened from any cause, but especially from loss of blood, exposure to cold readily occasions congestions about the viscera, which in their turn bring on local inflammation and general re-action of the heart and arterics.

Acute visceral inflammations sometimes arise from organic diseases; and when this combination occurs, it may often be discovered by tracing the history of the case back for some time, and carefully comparing the past symptoms with the present appearances. The acute attack will generally be preceded by loss of flesh, and some internal uneasiness. But the following examples of this kind may not be wholly useless to young practitioners.

An elderly and married lady had been afflicted several years with what were deemed nervous complaints. She was extremely liable to dyspepsia, was frequently attacked with violent spasms of the bowels, and gradually lost her appetite, flesh, and spirits. When she came under my care, she was considerably emaciated, and had that sallow, faded hue of the face and skin, which is so characteristic of organic affections. She complained of a constant uneasiness in the abdomen, and had occasionally violent pains there for a few minutes. Her pulse was rather quick, her tongue white, and her skin somewhat above the natural temperature. As the bowels were reported to be in a constipated state, I ordered a mild purgative, which however failed to operate, and not only greatly increased the

spasms of the intestines, but brought on distressing sickness. The irritation having been allayed by opiates, another purgative was ventured upon, but it produced the same effects as before ; and the lady began to complain of a violent *bearing-down* pain near the navel, as if, she said, there was some resistance in that part to the passage of the feces. Opiates again allayed the distressing symptoms, and on the following day some liquid stool was passed, in which there were small portions of extremely flattened scybala, as if they had been forced through a very contracted aperture. These appearances of the feces, together with the rest of the symptoms, led me to conclude, that there really was a stricture in some part of the intestines. From this time I determined to pursue the palliative plan. But in a short period the patient became considerably worse, and at length had a most decided attack of enteritis. The only chance of protracting life seemed now to be in moderate, but decided depletion. The patient was therefore bled from the arm till faintness supervened ; and this expedient afforded great and immediate relief. The blood drawn was extremely clotted, and covered with the inflammatory crust. Although the bleeding reduced the violence of the inflammation, yet it was obvious from the soreness of the integuments of the belly, the quick pulse, hot skin, and irritable state of the stomach, that some degree of increased action still existed in the bowels. On this account several leeches were put over the surfaces of the abdomen, and a blister afterwards applied. It was in vain to exhibit other powerful auxiliaries, since nothing but opiates would remain upon the stomach. For some days, however, there seemed a suspension of the inflammation, yet a general collapse gradually came on, under which she at last tranquilly expired. On examining the abdomen after death, the peritoneum and the large as well as small intestines were found considerably inflamed, and thickened in some places. Not far distant from the *caput coli*, a large tumour was discovered attached to the villous coat, which as nearly as possible blocked up the canal. Both above and below it, the gut was

much contracted, and somewhat firmer than natural. This tumour had doubtless been the gradual growth of many years, and, by impeding the descent of the faeces, had occasioned all the pain which the patient endured, and finally induced the inflammation which proved mortal. Yet in all cases of visceral inflammation, combined with organic disease, are not necessarily fatal as the annexed will clearly demonstrate.

A married woman, advanced beyond her fortieth year, had been a long time under my care, for chronic enlargement of the liver, and apparently of the right ovary. At one time, there was an indistinct fluctuation in the abdomen, with other dropsical symptoms; but a regular course of calomel and squill not only removed these, but improved the general health of the patient, though it did not remove the enlargement of the parts specified. She was attacked with the cutaneous eruption resembling the nettle-rash, but except from the troublesome itching which it caused, she conceived that it was very serviceable to her, having had less internal uneasiness since its appearance. The rash receded on exposure to cold, and soon afterwards she was afflicted with pain in the abdominal tumours, which in about two days became extremely severe, and was attended with universal soreness of the belly, and a high fever. The abdominal inflammation now being the most pressing and dangerous symptom, she was bled till she fainted, the bowels were repeatedly opened by full doses of calomel and jalap, and a large blister applied over the abdomen. These means were very useful, yet as some signs of inflammation still existed, calomel and opium were freely administered until the month became affected, and from that period she recovered rapidly. This patient had a second and similar attack, which was removed by the same means; but during its continuance, she passed an extraordinary quantity of morbid bile, and was persuaded, that *something*, as she termed it, had burst within her liver, as the tumour in the side from that time was considerably diminished. Since the last illness, she certainly had better health than for some years before, although the evidences of

the organic affections were still apparent. The rash returned after each of those attacks ; and it has doubtless contributed to arrest the progress of those internal derangements, which at some future period will, in all probability, prove fatal to her. Yet, notwithstanding the inflammation was twice arrested in this case, whenever there is reason to suspect that viscerai inflammation is complicated with organic disease, the prognosis should always be most guardedly given ; because, in general, patients either immediately sink under the acute disorder, or soon afterwards fall victims to the chronic one. Nothing marks organic disease so well as a continued and progressive course, with the loss of flesh and colour, and some quickness of pulse. Whenever patients do not recover as usual after attacks of acute inflammation of the viscerai, the most minute investigations ought to be made lest a chronic shiould have insidiously supervened the acute inflammation ; and as such an occurrence may be frequently traced to the too early use of generous drinks or diets, or to an exposure to a cold and variable atmosphere while yet in a state of weakness, so these should be studiously avoided by patients convalescent from inflammations of the viscera.

Now and then some mechanical obstruction is the cause of inflammation in the bowels, and when that is the case very large injections, thrown up with considerable force, are often of the greatest benefit ; but if the obstruction be seated above the valve of the colon, they will fail to remove it, when they cannot be forced beyond that valve, as happened in the following instance. A lady was attacked with symptoms of enteritis attended with a twisting sensation always referred to the same region of abdomen. All the ordinary measures failed to give relief, and only scanty evacuations were procured of a light clay-colour. Throughout the disease she had vomited bile, but towards its close she rejected much stereoraceous matter by the stomach, which was of a deep yellow ; and contrasting this with what had been passed by the rectum, it seemed pretty evident that a fixed obstruction existed somewhere in the intestines. Large injections, among various other measures, were tried,

but every thing was ineffectual. On examining the body after death, a rough gall-stone,* about the size of a common walnut, was found imbedded in the villous coat of the bowels nearly six inches above the valve of the colon. Part of the villous coat forming its bed was eroded, and a surrounding portion of the gut approaching to gangrene, while most of the intestine above was much inflamed, and all beneath natural. It is remarkable that this stone had passed the gall and common duct without rupturing either, and yet stuck in the bowel. The latter had probably been irritated by its pressure, and by contracting upon it, had fixed too it too firmly to be removed. Another gall-stone nearly of a similar size was found at the top of the duct, as if it had been about to descend.—Most of the accounts which we possess relative to enteritis are connected with inflammation of its peritoneal covering, but the villous coat is frequently involved at the same time; and when the inflammation exists to any extent in the latter separately, it constitutes the disease usually denominated dysentery, to which some allusions shall now be made.

DYSENTERY.

The cases of dysentery which I have seen mostly originated from the influence of the weather acting on the skin and thence on the abdominal organs, but I have never known any of these to propagate themselves by an inherent principle of contagion, like the genuine typhus. (w) Dysentery, under its

* This stone is in the possession of an esteemed friend, who attended the case with another physician, and myself.

(w) On this point medical men differ very considerably. Dr. Cullen in his First Lines states, that "the disease is always contagious." Dr. Parr thinks it is *generally* contagious, and Dr. Young that it is *often* so. Chrisholm declares that "few diseases are more apt to become contagious," while our author thinks that it is never propagated by an inherent principle of contagion.

very mildest aspect, has a resemblance and relation to diarrhoea where no positive inflammation exists; nevertheless, in all its more distinct and unequivocal forms, it is connected with inflammation or congestion. In the consideration of dysentery, as of every other febrile disease, the progress and tendency of the symptoms should be most assiduously noted at short intervals; because even when there are no indications of inflammations in the beginning, it may become rapidly or gradually developed during the advancement of the excitement.

The inflammation which is so liable to accompany dysentery is either of the sub-acute or of the acute kind as in typhus, and agreeably to my researches it is seated, for the most part, chiefly in the villous coat of the intestines, and in the liver. Dysentery generally runs a mortal course, if left to itself, within ten days, when the concomitant inflammation is of the acute kind, but when of the sub-acute kind it is considerably more protracted, and often assumes a chronic character, with signs of ulceration in the intestines. Though the sub-acute kind of inflammation commonly appears soon after the occurrence of the general excitement, yet it sometimes arises, at a late period, out of the mildest forms, a circumstance which does not so often obtain with the acute kind, as it most frequently occurs where the symptoms are strongly marked from the commencement. Yet in forms of dysentery apparently the mildest at their onset, an insidious inflammation may begin and proceed, especially in the villous coat of the bowels, with little or no permanent uneasiness; and therefore the greatest attention is requisite to unmask such secret attacks, and to prevent them from undermining the vital works within. If there be, in any case of dysentery, a great desire for cold drinks, attended

We believe simple dysentery is not contagious; it differs from those that are known to be such in having no fixed time of continuance, in affecting the same individual more than once, and in being arrested, are cut short in any of its stages. Dr. Chegne thinks it decidedly contagious when connected with continued fever, and uncontagious in its simple form.

with a sense of heat in the belly, nausea, flatulence, short breathing, and quick pulse, inflammation may be confidently suspected, even though all the other pathognomonic symptoms of abdominal inflammation should be absent.

When a marked stage of oppression, with a cool or cold skin, ushers in dysentery, an acute or sub-acute inflammation of some abdominal viscus will mostly be developed by the general excitement which follows that stage; and in fact the degree of the inflammation then developed seems to be proportionate to the degree of the general excitement, inasmuch as if the latter run high, the inflammation will be acute, and if it be more moderate, the inflammation will be sub-acute. This pathological view makes the concomitant inflammation rather an effect of the general excitement, than the original cause of the dysentery, and a strict survey of facts will verify this opinion: for in the first stage of oppression when the surface is cool, so far from there ever being any unquestionable sign of inflammation, a diminution of arterial tone exists every where; and the substantial evidences of inflammation only emerge with the excitement of the heart and arteries, which succeeds the first stage of oppression. If it should be asked why in dysentery the force of the general excitement should be spent or concentrated upon some of the abdominal organs, it may be answered, because those organs were more predisposed to disease than others before the attack. Indeed in many cases, this predisposition can be satisfactorily ascertained, from the influence of damp ground, of bad water, and of unwholsome food; so that the abdominal organs having been once rendered susceptible, when any general shock occurs, the principal effects of that shock will be seated in the weakest parts. If any topical affections should exist in the first obscure stage of dysentery, they are denoted by a deficiency of heat, and by an oppressed state of the heart and arteries; and therefore they cannot be fairly called inflammatory, for they are strictly venous congestions, and are removed by that increased action of the heart which generally follows them, and which produces both the constitutional fever and the topical inflammations.

All the cases of true dysentery which I have attended, originated from the influence of cold, under whatever form applied to the body. The first effect of this influence was an abstraction of caloric from the skin, and a consequent recoil of blood from the superficial vessels: an accumulation of blood succeeded in the internal veins, by which the heart was finally roused into a preternatural action; and in this manner the train of morbid phenomena generally proceeded, until the disease was completely established, or until indications of an acute or of a sub acute inflammation became apparent.

If to the symptoms, already enumerated in the abdominal inflammations of typhus, be superadded the frequent slimy, bloody discharges by stool, the griping, and the tenesmus, we may have a tolerably correct notion of the severer forms of dysentery; except that as the villous coat of the intestines and the liver are the parts most liable to be inflamed, we must never fail to look to them for some of the chief peculiarities in the characters of this disease, when it has once been fully developed. And as inflammation both of the liver and of the villous coat of the intestines may be most obscure in their onset and advancement, so practitioners should always be upon the watch in every case of dysentery; because with whatever appearances of debility this affection may be accompanied, dissection will always shew, that abdominal inflammation or congestion was directly or indirectly the cause of death. It occasionally happens in dysentery, as in typhus, that death takes place before the excitement has had time to emerge; and in such cases, considerable congestions are found after death about the internal organs, but particularly in the veins of the liver. Again, in other cases of dysentery, the fever puts on a distinctly remittent type, or it has a resemblance to the irregular forms of the congestive typhus; and in both examples of this description, an accurate inquiry will detect some degree of venous congestion about the liver or spleen, with a variable state of the surface.

There can be no doubt that dysentery may be cured by very

different methods—by bleeding and purging, by mercurials and opium, or simply by a conjunction of cathartics with sudorifics; and the reason of this will, in some measure, be manifest from what has just been said, since the disease has a variety of character which admits of a variety of treatment. But amidst the numerous plans which have been recommended, it is desirable to know those upon which most confidence may be placed, not only in the mild but likewise in the severe modifications of dysentery. The slightest attacks of dysentery have a close affinity to an ordinary diarrhoea, and as they may become aggravated to a dangerous degree from neglect or delay, they ought always to be attended to at the very beginning. Even in such attacks, there are three parts which claim an especial consideration, the lining of the intestines, the liver, and the skin; for no case of dysentery perhaps exists, however simple, in which the functions of these parts do not in some way participate. A few doses of calomel and castor oil will generally restore both the villous coat of the intestines and the liver to a natural condition; but the warm bath, and the occasional exhibition of the compound powder of ipecacuan will greatly expedite the cure, by allaying irritation and by inducing a general perspiration. In the commencement of all febrile diseases when the skin is cool or of an irregular heat, the warm bath has generally an excellent effect in contributing to equalize the circulation; and this simple expedient, together with the employment of purgatives and sudorifics, will often at once arrest the symptoms, or at least, by diminishing the venous congestions which then exist, will make the subsequent stage of excitement much milder than it would otherwise have been. Men who have practised in the navy and army must be fully aware of the great advantages which result from having patients immediately under command at the first attack of febrile diseases; and it is truly surprising to find how readily such diseases in general yield, at that early period, to the application of those measures which lessen internal accumulations of blood. In most threatenings of dysentery where ap-

pearances indicate venous congestions in the first stage, the lancet should usually be used without hesitation, when the heat has been equalized by the warm bath ; for if those venous congestions should not be speedily removed, they will give rise to an impetuous excitement, or endanger the structure of the part principally affected. But in most examples of this nature, where venesection is early required, a dose of calomel and opium ought to be administered after the operation : and if tepid diluents be given at the same time, this dose will commonly excite an universal perspiration, the effect of which is often strikingly efficacious ; so that little more is sometimes necessary afterwards, than to keep the bowels soluble by moderate doses of cold-drawn castor oil.

When fully developed with fever, dysentery is attended, under all its severer forms, with an acute, or a sub-acute inflammation of the villous coat of the intestines, and generally with an inflammatory or engorged state of the liver. If the inflammation of the villous coat of the intestines be of the sub-acute kind, and the affection of the liver similar, daily purging by calomel and castor oil, with occasional anodynes and the warm bath, may certainly accomplish the cure in many cases, provided these remedies be opportunely adopted. Yet even in such instances, it is invariably much better to bleed moderately at the beginning, and, the bowels having been freely evacuated, to produce ptyalism as rapidly as possible by the administration of calomel, with small portions of opium. It may be said, there are some records to shew that dysentery has often been cured without venesection, and the assertion cannot be denied ; this only proves, that diseases may be arrested by different measures, and the grand question is, what measures are most safe and efficacious in the general run of practice. If my observation be correct, early and sometimes repeated venesection at once diminishes the force of the abdominal affections, renders the system much more susceptible of the action of purgatives and mercury, and not only shortens the duration of the disease, but ~~lessens~~ greatly the chances of chronic affection supervening the

primary disorders in the abdomen. This even obtains in dysentery combined with the lowest degrees of inflammation, and those forms combined with an acute inflammation, absolutely require decided blood-letting from the first attack; as they are generally so rapid in their progress, that there is no remedy, with which we are at present acquainted, can operate so speedily as venesection in checking the inflammatory action. Whenever there is much irritability of the stomach in dysentery, it is a certain sign, that some of the abdominal organs are overloaded with blood, and venesection is then particularly indicated; indeed in every case of a threatening aspect, an impression must be made by the lancet soon after the attack, otherwise they will most frequently prove fatal in a short time, or finally assume a chronic character.

In the beginning of urgent instances of dysentery, the strength of the system is overpowered, if not really exhausted; and one or two bleedings, carried so far as unequivocally to make the pulse a mere flutter beneath the finger, will generally be very beneficial. It is still a common practice to bleed repeatedly in inflammatory diseases, day after day; but so far as I have remarked, the second bleeding should promptly follow the first, where the first has not given the intended relief. And if this method be pursued, with the means hereafter to be mentioned, repeated blood-lettings will seldom be necessary, even, in the early stages of dysentery, and of similar affections. As for the protracted cases of dysentery, the bleedings should always be small, whenever they are deemed requisite at that period; for the continued irritation of the disease has then so reduced the strength, as to render all powerful applications doubtful and even dangerous.

Though general bleeding, in my opinion, is incomparably the best first remedy in the more violent forms of dysentery, yet there are other auxiliaries which should be brought promptly into action, but particularly purgatives, with calomel and opium.

The most intense attacks of dysentery may be cured by the decisive employment of bleeding and purging at the beginning;

and the same might be asserted of the bold administration of calomel, combined with opium and sudorifics. But in estimating the powers of any one mode of treatment we should endeavour to trace it through its general consequences, before we venture to give a final opinion ; and if we find that there are some instances in which it fails, and that others of a precisely similar character prove remediable by the combination of another mode, we surely ought not to hesitate in making the addition in our future experience. Now, though bleeding and purging alone may cure dysentery, and though calomel and opium may have the same effect, yet a conjunction of these measures will be more efficacious in the main, than either administered alone ; and as we judge in medicine of the expediency of any thing from its general rather than from its particular effects, so we have the strongest grounds for preferring the united agency of these means to their separate agency. As soon, therefore, as a sufficient quantity of blood has been drawn a scruple of calomel ought to be given, with about two grains of opium. However it may contradict our preconceptions, very full doses of calomel generally produce in fever less irritation than small ones, and indeed when combined with opium, so far from creating, commonly allay irritation, and also act powerfully on the skin. About two or three hours after the exhibition of the calomel and opium, small doses of the sulphate of magnesia should be repeatedly prescribed until copious stools be procured ; and where the stomach continues irritable a little calcined magnesia may be added to each dose of the sulphate, a compound which often remains better upon the stomach than any other. The bowels having been thoroughly evacuated, calomel should be boldly administered, in urgent examples, with small doses of opium or of the compound powder of ipecacuan, and continued afterwards at proper intervals, that its specific effects may be established as speedily as possible ; and where the belly is not regularly moved under the use of the calomel, either the sulphate of magnesia or castor oil may be given as occasion may require, since these are unquestionably the best

purgatives in dysentery, but especially castor oil. When the mouth is once obviously affected by the calomel, prudence requires that should be withdrawn, or only prescribed in small quantities; but until recovery be completely insured, an action must be daily maintained upon the bowels; and yet this action must be moderate when the bowels have been once thoroughly opened, and ought not to be continued long when the stools become perfectly natural. By purgatives having been pushed too far in the advanced stages of dysentery, I have seen some patients apparently lost; and practitioners, therefore, should make a point not only of examining the stools daily, but of proportioning the evacuations to the strength of their patients. This is especially requisite in the present times, when the use of purgative medicines is in full force; for however excellent they may be in the outset and advancement of acute diseases, much caution is required in their exhibition when those diseases have begun to decline. (x)

The medical public, I conceive, is greatly indebted to Dr. James Johnson, an accurate observer of nature, for having so clearly illustrated the connexion between dysentery and the deranged functions of the liver and of the skin; and also for having demonstrated the great efficacy of scrupulous doses of calomel, combined with small portions of opium. The proper combination of these two medicines has a surprising effect in restoring the natural balance of the circulation, and in promoting a free secretion of bile and of perspiration. When it fails, however, in acting forcibly on the skin in dysentery, which will rarely be the case, small doses of pulvis antimonii-

(x) In the treatment of dysentery Dr. A. does not speak of emetics. We are well persuaded, however, of their great importance, especially as a principle object in the commencement is to excite perspiration. The preparation best adapted to effect this are the Antimonii, oxidum vitripicatum, two or three grains in a pill, or the Sulph. Zinc. combined with the Sulph. Aluminac et Potassae. The former though somewhat uncertain will ordinarily operate both as an emetic and a cathartic and at the same time promote a free perspiration, a circumstance very much to be desired in the early stage of dysentery.

lis and camphor, or of ipecacuanha, may often be added with considerable advantage; but the warm bath should be occasionally used at the same time, more effectually to equalize the vascular system, and to induce a flow of blood to the skin. Even a flannel bandage applied over the abdomen will not unfrequently give some relief to the torments and tenesmus, on this principle; and we cannot be surprised at the effect, when we see slight inflammatory affections of the fauces alleviated by wrapping a little flannel round the throat. Since the publication of the first edition of Illustrations, a protracted case of dysentery came under my care, in which the patient was exceedingly exhausted, and almost constantly harrassed by small ineffectual discharges of blood and slime, attended with considerable torments. The tongue was foul, the stomach flatulent and irritable, the pulse very small and quick, the patient lay upon her back with her feet drawn upwards, and she had a very troublesome hiccup. There was considerable tenderness over the region of the liver, but she could bear pressure without much uneasiness over the lower part of the belly, which seemed to be sunk or drawn inwards, as is sometimes very observable in bad cases of dysentery. Besides this unfavourable conjunction of symptoms, the stools were occasionally of a very black colour, which is always an untoward circumstance in cases of dysenteric disease. As general blood-letting appeared entirely inadmissible in the case, and as symptoms of inflammation still existed in the liver, I ordered six leeches to be applied over the integuments of the right hypochondrium; and without further delay prescribed fifteen grains of calomel with two grains of opium, and directed that a similar dose of the calomel, with one grain of opium, should be repeated in twelve hours. This treatment lessened the torments, tenesmus, and hiccup the first day, but the large doses of calomel, with the small proportions of opium, were regularly continued night and morning for four days longer, when a slight ptyalism occurred; and as from this period the case assumes a favourable aspect, nothing more was directed than a small blister to the

right side, occasionally doses of castor oil, and a flannel roller round the abdomen.

It was observed in the first impression of these pages, that local bleeding, as well as blistering, had invariably a double influence, a topical and general one, by the first of which a change is induced on the part, and by the second on the whole vascular system. Since then I have satisfactorily ascertained, that small portions of blood, taken away by leeches from the capillary vessels, have a considerable effect in diminishing the action of the heart. Whenever, therefore, inflammation exists in conjunction with much debility, this method of drawing should be adopted by way of arresting the inflammation, and saving the strength at the same time; but where leeches are employed in urgent and doubtful cases of this nature, a sufficient number ought to be applied, until there be an obvious diminution of the pulse. It is very common for persons to complain of being faint after the application of leeches, even when only a few ounces of blood had been drawn by them; and the action of the heart may be weakened or stopped by a small or moderate quantity of blood thus taken away from the capillaries, when considerably more would be required to produce the same effect, if abstracted from a large vessel. This fact admits of an extensive application in the practice of physic, but it is peculiarly appropriate to those inflammatory cases which have been so protracted as to induce debility. Nevertheless it must not be forgotten, that in the beginning of inflammatory disease, the lancet ought not to be superseded by local bleeding, though the latter may be employed as one of the best auxiliaries. In some instances of dysentery, I have ordered several leeches to be put to the integuments of the abdomen, and the result was always satisfactory, when this was timely done, and along with the means before mentioned; but though such a treatment may sometimes tend to arrest or to alleviate the symptoms at an advanced stage, yet calomel and opium must then be relied on more than other remedies. As for blisters, they may be said literally to burn the part to which

they are applied, for they appear to operate by accumulating or disengaging caloric; and the discharge of serum which at last takes place is a species of evacuation which may affect the local and the general circulation, though their chief efficacy is perhaps attributable to the principle of counter-irritation. In the earlier stages of dysentery, blisters are sometimes very advantageous, particularly when put to the region of the liver, after the use of depletion: but where the stools are extremely frequent, blisters create an external inflammation which often proves extremely troublesome to patients; and whenever deemed necessary in the advanced stages, they ought not to be made too large, as they might in that case give rise to a hazardous irritation and exhaustion.

The insufficiency and danger of half-measures could hardly be more strikingly exemplified, than by pointing out their effects in severe cases of dysentery; for, in the first place, many patients would fall victims to the unresisted rapidity of the disease, and in the second, in many it would assume a chronic character, where its violence had been somewhat moderated. In chronic cases of dysentery, complicated with affections of the liver, and with ulceration of the intestines, I have found nothing so useful as small doses of calomel and opium, or the blue pill with a little opium, and a regular perseverance in the Harrogate sulphureous water, so as to keep the bowels soluble by it; but the mercurial preparations should be continued until the mouth be made gently sore, and it ought to be kept in that state for some time, while the patient breathes a fresh atmosphere, and adopts a cool nutritious diet by way of recruiting the strength. When dysentery is complicated with ague, or when it has arisen from marsh effluvium, a change of air is often highly useful: but in most cases the ague cannot be cured till the dysentery be removed, and therefore in this, as in other mixed examples of diseases, the most urgent symptom must be first subdued.

Since my residence in London some cases of dysentery have come under my care to which the foregoing plan of treatment

was not exactly suitable, inasmuch as general bleeding could not be safely used, and the exhibition of calomel required the greatest circumspection. These cases occurred in emaciated subjects when just convalescent from a previous fever, and they were marked by a profound prostration of muscular power, and by great general irritation. In them leeching the abdomen was of much service. Cold-drawn castor oil as a purgative during the day, and repeated doses of the compound powder of ipecacuanha during the night answered the best purpose, with a small occasional dose of calomel where the secretions of the liver were vitiated. Thin arrow-root, in small quantities, was the most suitable diet. Whenever much abdominal irritation exists, it will be found a point of the first importance to give little and light food. If dysentery were to attack soldiers while resting in a camp and well-fed, it would bear the active treatment before mentioned: but if it were to attack an army worn out by disasters, retreat, and want of food, much milder measures would be expedient; and it is no doubt to the different circumstances under which the same diseases are liable to appear, that we must attribute part of that discrepancy of opinion which exists respecting their cure. Having adverted to inflammation of the mucous tissue of the bowels, a few remarks shall next be made on an inflammatory affection seated in a similar membrane, which covers a small but highly important part.

INFLAMMATION OF THE LARYNX.

Many cases have been presented to me, in which the mucous membrane of the trachea or that of the bronchia was acutely or sub-acutely inflamed, bearing more or less of the character of what has been called croup in the one instance, and peripneumonia notha in the other, as the inflammation chanced to occupy the trachœa or the bronchia exclusively. Where the tra-

chea was inflamed blood-letting general and local has been better sustained and more directly serviceable than where the bronchia alone was attacked: though even in the latter, small or moderate bleeding at an early period often proved useful; but in both advantage resulted from emetics, the warm bath, gentle laxatives, a mild regulated temperature, with bland dilu-ants to promote perspiration, small doses of Dover's powder and of calomel with the pulvis antimonialis. But I do not wish to advert so particularly to these affections as to that in which the mucous tissue of larynx itself is the special seat of inflam-mation. In all I have seen eleven cases of laryngitis, five of which terminated fatally. This is a mortality far greater than I ever witnessed in any other inflammatory disease, yet the re-port about to be given will, I sincerely hope, enable others to be more fortunate. The first case of largynitis which I saw did well by early bleeding, an antimonial emetic, and purgati-ives. In the second, I am confident of speaking within bounds when I assert, that one hundred and sixty ounces of blood had been drawn, before my visit, within the space of six hours chiefly from the arm by the lancet, but partly from the throat by leeches. Though this large quantity of blood thus rapidly drawn gave temporary respite to the dyspnœa, and prevented in fact immediate suffocation more than once, yet so far from arresting the inflammation the patient died within twenty-four hours, in despite of antimonials employed towards the close. In the third case, general and local bleeding, with blisters, nau-seating doses of antimony and purgatives all had a fair trial from the beginning, but they availed nothing; and in the fourth and fifth case alterative doses of calomel were added to local bleeding and other ordinary means with no better effect, but the sixth was not seen till the patient was so nearly suf-focating, that she expired before a surgeon could obtain an instrument to make an incision into the windpipe. From a review of these six cases, it appeared to me clear, that blood-letting had only been of unequivocal benefit in one of them. Recollecting the utility of an antimonial emetic in the first

case, and having observed some alleviation of the symptoms in two where vomiting was excited late, I determined to try emetics fully from the commencement, if similar instances again occurred. Five cases followed at different intervals, in all of which soon after the first attack the tartarized antimony was given, sometimes combined with ipecacuanha, in repeated doses, till free and frequent vomiting took place. No circumstance in my professional life ever gratified me more, than the great and sudden relief which the vomiting afforded; in reality it removed all the urgent symptoms at the time, and being excited as soon as ever the slightest signs of structure in the larynx returned, at last completed the recovery. In three of the cases, some huskiness in the voice remained with slight disturbance in the respiration, which induced me to prescribe calomel in small doses about every second hour till the gums became rather tender, with a view to obviate any risk of chronic inflammation that might have possibly remained. But in the other two cases this auxiliary was not employed. In one of these, the patient had only been ill about four hours when the voice was so completely suppressed, that she could only convey her meaning by making signs. She had been largely bled without the least benefit just before I saw her, and though she was then most obviously threatened with speedy suffocation, an emetic of antimony and ipecacuanha, which continued to operate for nearly three hours, gave her the most perfect relief. Such is sometimes the horrible rapidity of this disease, that one of the fatal cases before mentioned only lasted about eight hours, and an intelligent friend attended another which terminated in seven hours from its commencement. As I cannot help suspecting, that some instances of inflammation seated below the larynx have been published as cases of pure laryngitis cured by blood-letting and other commonly adopted measures, an account of the symptoms attendant upon this disease may not be unacceptable.

One of the first symptoms of all the cases which I witnessed was soreness in the throat, accompanied with less or more un-

easiness in deglutition. This soreness was not confined to the fauces but extended to the larynx which was tender to pressure. On examination the pharynx was always inflamed, and sometimes very considerably. At every expiration and inspiration the larynx had a preternaturally augmented motion, and, when the breath was drawn down strongly, the air seemed to enter impededly as if it had been forced through a very narrow aperture, and a hoarse, dull, hollowish sound was then made. The voice was converted into a sort of thick, obstructed whisper, and in two of the examples, was soon entirely suppressed. But one of the most peculiar and characteristic symptoms was, that the patients could not cough out in the way that is ordinarily done in tracheal, bronchial, or pulmonic affections. In fact they could not cough out at all, for when requested to do so they made a suffocating sort of attempt, which ended in a low, grumbling, and almost grunting kind of noise in the throat. Occasionally too there was a glutting sound in the fauces, apparently connected with an accumulation of mucous and saliva, and it was now and then followed by moaning rather expressive of subdued suffering than of pain. Nothing was expectorated from the trachea, but the secretion of saliva was increased and ropy, in consequence of which the tongue remained moist. The pulse at the first was mostly quick and small, but occasionally it was observed to be very little disturbed; the face was then pale while the lips retained their natural hue for some time; and the heat of the surface was irregular, being greater than natural on some parts, and less on others. In some instances the countenance at this period was so little changed, and the movement of the chest apparently so easy, that a careless observer might have passed the bed of the patient without suspicion of his perilous disease; but in other instances the countenance was agitated as if from alarm at the very beginning, and the chest heaved up and down with an evident increase of labour. This difference in the expression of the countenance and in the motion of the chest at the outset, seemed to depend upon the difference in the degree of the in-

flammation in the larynx at that time. As the inflammation advanced, however, the respiration always grew more and more difficult, till at last death seemed literally to occur from suffocation, most probably occasioned by tumefaction within the larynx and about the epiglottis; as dissection shewed that considerable inflammation had invariably existed there, without any other appearances sufficient to account for the fatal issue of those cases in which the examinations were made. The inflammation may be simply in the larynx and its vicinity, or it may extend down the whole of the trachea and even into the bronchia; but from what I have seen I am inclined to believe, that when the larynx is primarily attacked, the inflammation is generally limited to that part and to the pharynx. Though my own experience in laryngitis is little in favour of those methods which I have seen the most effectual in other inflammations, yet I would not be understood to insinuate, that bleeding may not be beneficial in some cases; but certainly from what I have witnessed I shall in future place my chief reliance upon the early, and, if necessary, the repeated administration of antimonial emetics, and consider other expedients as merely secondary, until a more efficacious mode of treatment shall be discovered. In this formidable malady it will be found of the highest importance to watch over the patients most narrowly even when a signal remission of the symptoms is obtained; for the inflammation is so exceedingly liable to return, that if the emetic should be neglected on the occurrence of each relapse, the danger would probably be so much increased by the delay of a few hours as to render it then ineffectual. In some of the examples in which the emetics were given I staid with the patients in order to ascertain if possible its mode of operation. The first effects which seemed most evident was an increased secretion of mucus from the fauces, and I suspect also from the membrane of the windpipe, the next was repeated and pretty strong attempts at inspiration which really appeared somewhat to relieve the stricture of the larynx, probably favoured by the flow of mucus from the adjacent parts. But the decided relief did

not take place till full vomiting supervened, during the whole of which the larynx was much moved by the muscles then in action ; and probably this very motion had some effect in changing the condition of the circulation in those minute capillaries which are the seat of the disease. But the vomiting is attended and followed by a pretty copious discharge of mucus from the throat, and as this influence of an emetic perhaps extends throughout the trachea, the fulness of the affected vessels may partly be thus relieved. On keeping my hand upon the pulse before, during, and after the operation of the emetic, I could not perceive that it underwent any very material change ; so that in these instances its efficacy could not be referred to its action on the heart.

ERYSIPelas.

For practical purposes, erysipelas may mostly be regarded as an inflammatory disease, the seat of which, when simply external, is in the skin ; but as in the case just reported, the parts beneath are liable to be implicated, especially the cellular membrane, and the fasciæ of muscles. Erysipelas has been presented to me under two forms, the first of which by way of distinction, shall be denominated phlegmonoid, the second erythematic ; though these are merely modifications of the same disease, and solely dependent for their peculiarities on the condition of the patients whom they attack. It was the phlegmonoid erysipelas which I frequently met with in the country ; and the erythematic I have often seen in the metropolis. By contrasting the proper symptoms of each, and the constitutional differences of their subjects, it is hoped, that some doubts and difficulties will be removed in regard to the treatment ; and first then for the consideration of the phlegmonoid erysipelas as it occurred to me in the country. The phlegmonoid erysipelas attacks those who had been previously either robust, or at least tolerably strong. The part affected is of a bright red col-

our, and much swollen, and the attendant fever of the full inflammatory type, the heat being high, and the pulse expanded and resisting; excepting where an internal inflammation is combined, and the pulse is liable to be depressed, to be smaller but still tenser than natural. This species of erysipelas commonly terminates either by a considerable effusion of serum into the cellular membrane adjacent, or by suppuration in that membrane, but occasionally by gangrene; and on these accounts, as well as the nature of its primary symptoms, it has so strong a resemblance to phlegmonous inflammation, as to justify the epithet phlegmonoid.

The phlegmonoid erysipelas resembles typhus thus far, that it is either simple or complicated,—simple when the cutaneous redness and the fever are not connected with an internal inflammation, and complicated when they are co-existent with an internal inflammation. In the simple phlegmonoid erysipelas, however, what are called increased determinations of blood frequently take place in different organs, or rather there is an interruption or distension, in the vessels of those organs, which does not usually amount to positive inflammation at any time, but which may pass into inflammation from the continuance of the general excitement. In a word, the simple form of this disease may be converted into the complicated, from the increased action of the heart and the increased re-action of the arteries operating on topical predispositions which had before existed in a latent state; and the more the subject is examined the more certainly will it appear, that most visceral inflammations are the mere effects of general excitement, the force of which is only so decidedly directed to particular parts, because those parts had been previously weak, or otherwise morbidly disposed. The secretions of the liver are especially liable to be disordered even in the simple phlegmonoid erysipelas, and with them the functions of the whole surface sympathize: indeed a large majority of erysipelatus attacks may be traced to the influence of the atmosphere, or to other causes which operate on the skin and liver, between which so remarkable a

consent exists ; and in those persons who are most liable to erysipelas it will generally be found, that they are subject to bilious disorders, and to irregular conditions of the skin as to temperature and perspiration. When inflammation of any of the vital organs does arise out of the simple phlegmonoid erysipelas, it is in general the gradual product of a moderate excitement, and assumes the sub-acute character ; whereas in the more originally complicated form, the visceral inflammation rapidly supervenes an impetuous excitement, and assumes the acute character, the affection of the cuticle being then commonly the secondary disorder.

When the phlegmonoid erysipelas follows blows or injuries of any kind of the head, more than ordinary care is necessary, for the brain and liver are apt to be inflamed ; and I have seen some cases of this nature where the inflammation stole on in the most insidious manner and at last proved fatal, under the mask of the external affection. In all the dissections which I have made, in fatal instances of the phlegmonoid erysipelas, the brain, or its meninges, the liver, or the intestines, had visibly been the seats of that internal inflammation, which is so frequently the cause of death in this disease. The symptoms, therefore, already enumerated in the inflammatory typhus will enable the paractitioner to detect the modifications of the complicated forms ; and from what has just been advanced it will hardly be necessary to remind him, that he ought never to allow the mere cutaneous disorder to withdraw his attention from what may be going on in the the vital regions of the interior.

If the simple phlegmonoid erysipelas be early attacked by proper measures, it will hardly ever become complicated ; and so far as I have observed, it may commonly be removed within the first nine or ten days, provided the remedies be applied from an early period ; but when the remedies are not thus easily applied, it will often continue much longer, though it may generally be conducted to a favourable issue, by carefully watching over the viscera. At the commencement, one decisive bleeding from the arm should be employed, and immediately

afterwards several leeches applied over the external seat of the affection : an antimonial emetic should then be administered,—the bowels freely evacuated by calomel, jalap, and neutral salts,—and a blister afterwards placed either between the shoulders, or over the region of the stomach. These measures, executed in rapid succession at the beginning, will often entirely subdue the disease in a short time, or at least render it so manageable, that it will yield in a few days to a regular perseverance in purgatives and an antiphlogistic regimen. When the abdominal secretions are much disordered, tolerably full, and even repeated, doses of calomel will generally be needful, in combination with small ones of antimony ; for by the conjoint use of these preparations, an aperient, sudorific and nauseating effect may usually be produced, which most frequently tends to restore the patient rapidly to health again. The only topical remedies to which I am partial, for the phlegmonoid erysipelas, are leeches, and cold saturnine lotions ; but the former are infinitely preferable, and indeed in my practice they have proved exceedingly useful, when early applied, which is more than I can say of the saturnine lotions. Some time ago, I saw an erysipelas of the face apparently repelled by a stream of cool air, which played upon it from a broken pane in the room where the patient lay ; and signs of coma soon afterwards appearing, death speedily took place with all the common indications of apoplexy, but an examination could not be obtained to ascertain the precise state of the brain. The result of this case certainly seems to bear strongly against the application of cold in one form of erysipelas ; but as it is unfair to draw a general conclusion from a particular instance, I wish this merely to stand as a fact fitted to attract notice ; and at the same time it is only proper to remark, that I have never known an erysipelas to be repelled by cold saturnine lotions, though I have seen them very often used. We have been in general dissuaded from the employment of leeches in erysipelas, from their bites having been said to induce gangrene ; but from ample experience I dare venture to assert, that this is an

occurrence which need never be dreaded in the *erysipelas phlegmonoides*, when the leeches are early applied in robust habits ; and in such they may be safely and beneficially repeated two or three times in the course of the disease, though they should not be recommended in the advanced stages, as possibly their punctures might then become gangrenous.

The prompt yet limited adoption of the antiphlogistic treatment will in general not only prevent gangrene on the surface, but those effusions and suppurations, which sometimes produce so much mischief, when *erysipelas* is seated in the extremities. Dr. A. C Hutchinson has published a most valuable paper, in the *Medico-Chirurgical Transactions*, in which he recommends the treatment of *erysipelas* by incision. His plan is, to make several free incisions with a scalpel, on the inflamed surface, in a longitudinal direction, through the integuments and down to the muscles, as early in the disease as possible, and before any secretions have taken place. These incisions, the author says, may be about an inch and a half in length, two or three inches apart, and vary in number from six to eighteen, according to the extent of the surface the disease is found to occupy.* This method was extensively and successfully pursued both by Dr. Hutchinson and several naval surgeons, in this species of *erysipelas phlemonoides*, which is so liable to attack the extremities of sailors. From its proved efficacy, and the highly respectable authority whence it proceeds, it is certainly deserving of a more extensive trial in private practice, than it has hitherto received. But those who wish to pursue it, should peruse the precise and perspicuous tract, from which the above information has been briefly cited. It is remarkable what coincidences of opinion and practice may sometimes be found among those who follow the same pursuits, and that too from the independent research of the individuals who so strikingly agree. Though Dr. Hutchinson was

* See *Medico-Chirurgical Transactions*, published by the *Medical and Chirurgical Society of London*. Vol. v. p. 232.

not aware of the fact, yet so far back as the time of Dr. Friend, a practice similar to the above prevailed; for the latter observes in his *History of Physic*, that in an erysipelas, *scarifying* upon the part, when the membranes are loaded and thickened, will often remove the inflammation in a very sudden surprising manner.*

When phlegmonoid erysipelas is complicated, the brain and the liver are most frequently involved in the inflammatory action. Under this more serious form of the disease the most vigorous treatment is demanded;—the early, decided and sometimes repeated, use of the lancet, with free local blood-letting by leeches, promptly succeeded by active purges of calomel, jalap, and the antimonial powder. These steps having been taken, a large blister should be applied as near to the region of the internal disorder as the erysipelas will admit, and the calomel should be continued till slight ptyalism succeed; though it should always be determined freely in the day to the bowels by other aperients, while the excitement lasts, for unless this be done it will be difficult to obtain its specific effect. If the brain should be inflamed, and the erysipelatous affection should be so extremely diffused over the face, neck, and shoulders, as to make the propriety of a blister between the scapulæ more than questionable, it may be applied near the site of the stomach, where it will have a considerable influence over the brain, on account of the sympathy which exists betwixt these two organs. This is no speculative opinion, for in many diseases of the head, I have seen the most unequivocal benefit from blistering the region of the stomach.

In the complicated form of the phlegmonoid erysipelas, the depression of strength is greater from the first than in the simple variety, and the pulse often feels less tense; because the vital functions are more impeded by the additional oppression of the internal inflammation. Nothing, therefore, can be more

* See Vol. i. p. 76, of the *History of Physic*. By J. Friend, M. D. The fourth edition. London, printed for M. Cowper, 1750.

fallacious than to suppose, in the beginning of such cases, that the apparent depression of strength and of the pulse, prohibits depletory measures;—the fact is, that they strongly point out their propriety, and the system will rise, as if relieved from a load, under their administration. A depressed state of the pulse, in the commencement of febrile disorders, almost invariably indicates the necessity of evacuations; for, on minute investigation, it will be discovered, that it is connected either with local congestion or local inflammation. From the outset, the fever attendant on the phlegmonoid erysipelas frequently assumes the aspect of the inflammatory typhus, and then some internal mischief may be most certainly apprehended. It has been my misfortune to witness this disorder treated as one of real debility, in numerous examples,—consequently wine, bark, and all sorts of cordials, were by turns exhibited; yet this treatment, so far from supporting the strength, hardly proved successful in a single instance. Like almost every other acute fever, the phlegmonoid erysipelas is only asthenic in the last stage, in which an universal collapse occurs, as the mere product of preceding excitement or congestion. These opinions do not rest on speculative grounds; their accuracy has been extensively tried and confirmed in the country, not only by my own experience, but by that of many intelligent friends, in whose hands early and free evacuations have been as highly efficacious as in mine.

Those who have had one attack of this disease, are extremely apt to have returns of it; and this is especially the case with the simple phlegmonoid, which indeed is a much more frequent disease than the complicated. Persons who are thus predisposed to erysipelas should have the surface covered with flannel, avoid indigestible food, and keep the bowels regular by an occasional dose of castor oil, or rhubarb and magnesia. But whenever the biliary and intestinal secretions are disordered, a full dose of calomel should be taken, as restoring

them to a proper condition will often prevent an attack of this disorder. (y)

There is one variety of the phlegmonoid erysipelas, which has not yet received that consideration which its importance and danger deserve. It attacks infants, generally under a year old, and first appears on some part of the upper or lower extremities, leaving one place, and then affecting another, till at last it successively travels over almost all the surface of the body. Nay, I have known two cases where an erysipelas of this nature went twice over the whole skin, in the manner just described. This disease is often produced in infants by cold; sometimes it arises from the irritation of teething, and at other times from an improper diet and disordered bowels. It is usually attended with a considerable fever, and the secretions of the liver and intestines are very morbid, if not at its commencement, at least during its progress. The little sufferer is liable to become delirious, and, if the disease should not be early arrested, generally expires in coma or convulsions within the first three weeks. Though this is a strictly erysipelas phlegmonoides I have not myself seen it produce those large effusions and suppurations under the integuments, which are not uncommon in the extremities of adults attacked by the disease.

Whatever plan of treatment be adopted in the infantine erysipelas, success will be uncertain; yet in the country the following has appeared to me more efficacious than any other. The primæ viæ should be freely evacuated without loss of time first by an antimonial emetic, and then by repeated doses of calomel and castor oil; indeed, during the continuance of the complaint, copious motions should be daily procured. If the

(y) I have seen Cinchonæ and opium given in this disease with the happiest effects and I am inclined to believe that small doses of opium in combination with the bark is an invaluable remedy in the treatment of this disease, provided that the bowels, at the same time, be kept soluble by calomel, castor oil, or some gentle cathartic.

stools should have a sour smell, or become greenish soon after they have been evacuated, a little magnesia and rhubarb ought to be administered, along with the calomel. Soon after the first attack, also, as many leeches should be applied as will abstract sufficient blood to induce faintness, which will sometimes prove decidedly beneficial in arresting the disorder. Although an expert surgeon may generally succeed in drawing blood from the external jugular vein, or the anterior branch of the temporal artery, in infants under a year old,—yet all the benefit which can result from bleeding, may be obtained by the proper management of leeches, which on account of the highly vascular state of the skin, draw more blood from children than adults. Nay, in this particular instance, local is superior to general blood-letting; because by it you can make a direct and powerful impression on the erysipelas itself, and likewise induce a general change in the circulation, by persevering in it till faintness supervene,—or at least until the child begin to heave at the chest, or to turn pale in the face. In fact the local bleeding must be carried on until it shall decidedly diminish the action of the heart, otherwise it will do no good; and I wish to be the more pointed in this remark, because from a disregard to it, local bleeding may at once be brought into disrepute in this disease. The leeches may be re-applied, at any time within the first three or four days from the commencement of the disorder, though they should never be recommended at an advanced stage. Sydenham was a great advocate for bleeding in the febrile complaints of children, and in such complaints they generally bear it well in the beginning, particularly by leeches: but when the symptoms have been allowed to proceed unarrested for some days, the strength of children often falls with great rapidity under even local abstractions of blood; and in advanced stages, therefore, purgative medicines should always be preferred to local bleeding, as the evacuation from them weakens less than any other.

When enough blood has been drawn in the infantine erysipelas, a small blister may often be applied with benefit to the

region of the stomach, or between the shoulders. If there be any tension upon the gums they ought to be freely lanced, until the instrument distinctly grates on the hidden teeth; for such free incisions often afford great relief, while superficial scarifications are attended with little or no advantage. The general irritation of the system must be allayed by the occasional employment of the tepid bath, or by few drops of laudanum under the form of an enema; but it should always be recollect that infants are rendered extremely irritable by long fasting, and on this account a little light food will often lessen fever, and apparently put them to sleep. It is of great consequence in all the febrile affections of children to allay irritation as speedily and as mildly as possible; for if it should long continue unsubdued, it mostly exhausts their strength and proves fatal at last. On this account, it is of great importance to attend to the state of the vascular and nervous systems immediately after bleeding in children; and if there should be much quickness of pulse and much irritation combined, a few drops of laudanum and a little food will frequently induce a state of great tranquillity. But so far as my observation extends, excessive irritation only follows profuse bleedings in children, which are almost always prejudicial, from the violent action of the heart and irritation of the nervous system which succeeds them; and even under such circumstances, the tranquilizing effects of food and small doses of laudanum are sometimes super-eminently serviceable. Yet it is only in cases where great irritation exists, that laudanum should be used for children; and I have reason to believe, that much smaller doses should be given than have been usually recommended by systematic writers. For small doses will often effectually allay irritation when full ones would only produce oppression; and where a small dose fails to allay irritation in children, it is better to repeat it than to venture upon a full dose at once. As the infantile erysipelas is often so very formidable, would it be allowable to use incisions or scarifications on the parts affected? And as these have been ascertained to be serviceable in the erysipelas

of adults, and as leeching has also been so in the disease in question, is it not probable, that they might answer a good purpose, if early and judiciously employed ? Thus far in regard to the phlegmonoid erysipelas which I saw while practising in the country, and next a few words shall be said on the erythematic form which has come under my inspection in the Fever Institution of the metropolis.

At different times within the last twelve months, some patients in the Fever Institution have been seized with erysipelas just when convalescent from typhus, when in fact they were weak and emaciated. This form of erysipelas, therefore, supervened in constitutions almost opposed to those in which the phlegmonoid existed, and as it differed not only in this but in other respects, it shall be termed the erythematic. In this form, the efflorescence was not of a bright but of a dull red colour, similar to that of the mulberry, nor was there much swelling of the part, which very often had an early tendency to vesication, a thing not observable in the phlegmonoid. The attendant fever was of the irritative kind, the pulse being small, quick, and soft, the heat superficially pungent, and the tongue though dry in the middle, yet mostly moist in a line round the edges. This modification of erysipelas had two modes of accession. It either came on suddenly with little or no previous warning, or it appeared upon the second or third day in an ordinary fever of relapse. Most frequently it had the simple character, especially in the first mode of accession, and under that character invariably, I believe, yielded to a mild treatment ; for example, to moderate doses of cold-drawn castor oil which kept the bowels gently open, and to small doses of liquor ammoniæ acetatis and the tepid ablutions, which cooled the skin. But the exhaustion in the subjects of such cases prohibited the active measures suitable for the phlegmonoid erysipelas of widely different habits ; yet the heat of the skin, the quickness of the pulse, the dryness of the tongue, the local pain or tenderness, and the general irritation seemed as powerfully to prohibit diffusible stimulants. So much was this presumption

confirmed by experience, that both the topical and the constitutional symptoms of the erythematic erysipelas were always aggravated by animal broth for some time after their commencement ; indeed I found thin arrow root slightly acidulated with lemon juice vastly superior, as it supported the strength without increasing the fever. At bed-time, when the bowels had been previously opened, and the heat of the surface diminished by light clothing and tepid ablutions, four or five grains of Dovers powder were sometimes beneficial, as well in procuring rest as in promoting a gentle perspiration. Whenever the stools became unnatural, or the urine tinged with bile, as occasionally happened, a few grains of calomel now and then, followed up by cold-drawn castor oil, were useful but in the erythema simply, calomel as an alterative is injurious. For some time I have ceased to use local application in the erythematic erysipelas, the result of my experience having shown that, whether employed cold or warm, their effect was exceedingly uncertain, and that they were oftener disagreeable than pleasant to the feelings of the sick. To the best of my recollection, I have not seen an instance of the simple erythematic erysipelas fatal ; but some cases have been so which were complicated with internal inflammation, and in two of these the erysipelatous affection was gangrenous before death. Suppuration is rare in the erythematic erysipelas, and if it should ever destroy without implicating the internal organs, it would probably be by irritation, a circumstance very conceivable in reduced habits.

In few examples only, however, has the erythematic erysipelas been complicated with internal inflammation, though I believe, that such a combination would have frequently taken place had it not been for the mild evacuant and cooling plan which I adopted from the earliest periods. Where the erythematic erysipelas did co-exist with internal inflammation, it was attended with very great danger, on account of the reduced condition of the patients at the time of the attack ; and no one without experience in such attacks can conceive how arduous

and anxious the management of them is, compared with similar combinations occurring in vigorous patients, who had been previously well. When a visceral inflammation occurs in any one enervated by a prior disease, too free evacuations are followed not only by a sudden shock to what constitutional power remained, but an extreme irritation of the nervous system, which by agitating the heart soon exhausts it entirely, and thus death rapidly ensues. On the other hand, too little evacuations are to be dreaded, lest the inflammation should be left to pursue an uncontrolled career, of destructiveness, in a system where the waisted vitality can at best but offer a feeble resistance; but, extremes being avoided, cautious evacuations, by local bleeding and purging, duly proportionate to the capacities of the patient, may make a favourable impression, and prepare the way for soothing anodynes, and the recruiting energies of nature. It was in this way, that I have, seen some complicated cases of the erythematic erysipelas successful beyond expectation. In the practice of physic, we ought never to forget, that there is a tendency in nature to remedy the remains of many disorders; and it is certain, that exhausted patients may be readily destroyed from an over-zealous zeal of doing something, where nothing was required.

Many writers have considered pure erysipelas contagious under certain of its modifications; but I have not met with a single fact which would justify me in drawing such a conclusion. It is remarkable, however, that it is more common in hospital than in private practice, even where the cleanliness of the rooms and the personal comforts of the patient are the same; but as in hospitals it prevails at certain times of the year and disappears at others, it would seem to be connected with some general as well as local state of the air; one of which may stand in the relation of a predisposing, and the other of an exciting cause of this disease. It is curious why the face should be so much more frequently affected than any other part; but as it is much more exposed than the rest, that exposure appears to give a predisposition. Sometimes I have observed, that the

attack took place on that side of the face next to a window; but more often upon that side of the face which the patient had pressed against the pillow. Whenever in hospitals a tendency to erysipelas is apparent, the use of local bleeding by leeches, and of blisters should be resorted to more cautiously than when no such tendency exists; for then the punctures of leeches, and the blistered parts are apt to become erysipelatous, and if the patients be weak, this additional irritation might be serious. Even at such times, when a vein is opened, it should be closed with the greatest care, and the arm bandaged with the greatest exactness; because if a pad and bandage were slovenly applied, they might produce about the puncture some irritation, and that again be followed by erysipelas in the part.

RHEUMATISM.

Rheumatism has been divided by authors into the acute and chronic, but a more natural division would have been into the acute and sub-acute, and chronic. As the two former, however, might be said only to differ, in the degree of their intensity and duration, they shall be treated of as one, agreeably to the common arrangement, and the chronic will not be made an object of consideration here. The acute rheumatism is an inflammatory disease generally attended with considerable fever, and the seat of the pain appears to be generally in the fasciæ of muscles, or in the membranous investments of the joints; but I am persuaded, that the muscular fibres themselves are sometimes affected, not only in the external parts of the body, but even in the heart and intestines occasionally, when the rheumatism suddenly leaves the former and attacks the latter. Yet where no translation of this kind occurs, rheumatism ought not always to be viewed, as is generally done, simply as an affection of the superficial tissues; for in some instances, I have seen inflammation of the different viscera occur, from the force

of the general excitement, on the principles before explained. Though the acute rheumatism, therefore be spoken of as if it were a simple disease, yet all along I wish it to be clearly understood, that it may be complicated with those internal inflammations, which have been so repeatedly pointed out as the concomitants of other febrile affections.

At different periods, my practice has been more varied in the acute rheumatism than perhaps in any other complaint, merely because none appeared to me sufficiently successful for a long time. On repeated trials, however, at last I found, that very early venesection, first succeeded by purgatives, next by calomel, opium, and antimony, was far better than any other of the tried plans, when followed up by local bleeding, blistering, the warm bath, and an antiphlogistic regimen. But the acute rheumatism is generally much more remediable at its first invasion than when it has remained for some days. Many febrile diseases seem to have a sort of determined duration, when they are allowed to proceed without interruption for a certain period; and this is often so remarkably the case in acute rheumatism, that many practitioners have inferred its course cannot be shortened, even when encountered from the first. But I am now thoroughly convinced, that this disease would seldom be protracted, and by consequence would far less frequently put on a chronic form, if evacuants and alteratives were promptly used at the commencement: and deeming this to be a practical truth of much importance, I would repeat it again and again, that practitioners might be awakened to that promptitude and decision, which most acute attacks of this affection demand.

On the first attack of the acute rheumatism, I generally used to order from twelve to twenty ounces of blood to be abstracted, then to purge the patient briskly for about two days, and afterwards to saturate the system with calomel, combined with sufficient doses of opium and antimony to allay pain, and excite a gentle perspiration. There was commonly an obvious relief of symptoms as soon as the mouth became tender. By

maintaining the specific action of the mercury for about ten days, and by keeping the bowels in the mean time soluble, the cure was most frequently accomplished, in cases which had thus been treated from the beginning. In several instances, however, which fell under my observation in the country since the first edition of this treatise was published, I repeated the general venesection promptly, when the first operation failed to give a marked relief; and wherever this practice was employed, and speedily followed up by purgatives, with colomel and opium, the recovery was extremely rapid. The result of my own experience, therefore, led me to conclude, that acute rheumatism may in general be quickly arrested at the beginning by proper applications; and perhaps future experience will bear me out in the opinion, that it is, for the most part, only a protracted disease when paliatives are used, instead of powerful measures at the onset. It must, however, be admitted, that when acute rheumatism has existed unimpededly for a few days, the best expedients will not reduce it at once, though they will commonly lessen its intensity and shorten its duration. In the treatment of acute rheumatism, as of simple inflammation of the viscera, we must not expect bleeding, purging, and alteratives to be successful when separately employed: but it is the combined agency of all these, brought rapidly to bear on the disorder, that we must look for the full effect; and to ensure these measures one by one, because they each may fail, is to disregard their conjoint influence in their particular properties. When the specific action of mercury has been obtained after bleeding and purging, it ought to be wholly omitted, or only given in very small doses, according to the degree of its influence: and the bowels should still be daily moved, for the employment of purgatives always accelerates recovery in the most acute cases, and where the disease has been partly broken at the first, no medicines are more beneficial; but in such cases as the last they should be daily administered for some time, and upon the whole the sulphate of magnesia and castor oil, especially the latter, will be found

to answer the best purpose. It is a rule with some practitioners to repeat blood-letting in inflammatory diseases so long as the blood shall remain buffy. Nothing could be more fallacious than this rule in rheumatism, for where it is not successfully arrested at the onset, the blood will continue to show the buffy coat, in despite of repeated venesection ; and in such examples we must not pursue the evacuations of blood merely from the continuance of the buff upon it, but laying the lancet aside, rely upon milder measures for eradicating the disease.

As the pain is often excruciating in the acute rheumatism, I must warn the inexperienced not to let the circumstance induce them to prescribe opium in large and repeated doses ; for by such a procedure I have known some patients become comatose, and actually saw two who had been forced into an apoplexy by the too free exhibition of this drug. Neither agreeably to my observations, is the common practice of applying rubefacients, to the parts affected with the most violent pain, at all a safe one ; at least in four cases where they were thus employed, the rheumatism receded from the integuments, and in three of them the heart was attacked with inflammation, and the intestines in the fourth. One of the former, and the last did well by bleeding, laxatives, an alterative course, and blistering ; but the other two examples were fatal under a similar treatment. The acute rheumatism, too, sometimes suddenly recedes from cold air applied to the skin, when there is a free perspiration ; and I once saw an instance of this kind, caused by getting ineptuously out of bed in a winter's night without clothing, in which the patient sunk with great rapidity, apparently from an affection of the heart. But the acute rheumatism as before hinted may exist in the joints simultaneously with an inflammation of some of the viscera ; and within the last year I met with two such cases, both of which did well, though in one the liver, and in the other the pleura was inflamed. Leeches to the seat of the rheumatic affections sometimes do a great deal of good, after general venesection ; and so far as my experience has extended, they are perhaps the only lo-

cal application which may prove useful, without the risk of causing translation. On the principle of counter-irritation, I have sometimes applied blisters, with advantage in acute rheumatism, to the region of the stomach or between the shoulders; but the former place is generally preferable, on account of the great sympathy which the stomach has with all parts of the body. When, however, on the sudden subsidence of the external pain and inflammation, some of the viscera are attacked, the blisters should always be put over the parts where the disease had originally existed, as their power of counter-irritation is useful, particularly when excited on those parts. As local applications, Dr. Balfour of Edinburgh, in an ingenious publication, has lately called the attention of the faculty to the utility of bandages in rheumatism; but I regret extremely, that the trials made of this method in my practice have not fulfilled his anticipations. It is well known, that rheumatism most frequently arises from the vicissitudes of the weather, and that persons who have once been attacked are liable to repetitions of the disease. One of the best preventives of this complaint in the first instance is a good covering of flannel or fleecy hosiery next the surface; and the one or the other of these should be almost always worn by persons who have had an attack, else they will be extremely liable to relapse. By those to whom flannel or fleecy hosiery is uncomfortable on account of its irritating the skin, wash-leather shirts may be worn in cold weather under their linin, for they keep the surface very warm; but in the summer season, the wash-leather is not so suitable as thin flannel or worsted hosiery, because the first when imbued with perspiration is apt to chill the surface, which is not the case with either of the last. Most of the inflammatory diseases of this country arise from the sudden vicissitudes of the surrounding atmosphere, by which the animal heat is so abstracted from the surface that the blood retires too superabundantly into the internal parts, and this venous congestion produces the excitement of the heart and arteries which ends in inflammations; but if some such thing as flannel was univers-

ally worn next the skin, the temperature of the surface would be kept so uniform as to prevent these congestions from the changes in the air, and thus numerous other diseases of inflammation, besides rheumatism would very often be prevented.

Principally from the strong terms of recommendation in which a much valued friend spoke of the *colchicum autumnale*, I have been induced, within the last year, to try it in the acute rheumatism ; and certainly it has given a more speedy and decided relief, than any other single remedy which I ever saw employed, so that I am disposed to believe it a most valuable adjunct. In some instances, I have given it when the rheumatism was combined with signs of certain degrees of inflammation in the head, chest, or abdomen ; and in all of these, the local irritations of those parts were remarkably alleviated with the rheumatism, apparently from the influence of this remedy. My own experience, however, would by no means justify me in drawing a confident conclusion, that the *colchicum* exerts a general power over inflammatory diseases ; though an experienced relation of my informant has long used it with signal success in such affections, and I trust that he will shortly lay the results of his 'practice before the medical public. The preparation which I have used is the tincture, made by macerating for about a fortnight two ounces of the recent bulb of *colchium*, taken I believe in the beginning of summer, in four ounces of proof spirit ; and of this tincture, perfectly transparent, one drachm has been given night and morning in the more violent cases, and about half a drachm in those of less urgent nature, until the pain and fever have abated. Where the acute rheumatism was seen early, the lancet was always premised, and laxatives always daily ordered at whatever period they might be seen : and though partial to calomel and opium, from that sort of attachment men form to remedies which they have long prescribed, yet I must confess, that the cures have been as rapid and fully as complete by the *colchicum*, aided by bleeding or laxatives. From narrowly watching the effects of the *colchicum* I cannot refer its efficacy to any species of evacua-

tion; for it has been servicable where it neither acted on the bowels, kidneys, nor skin, though occasionally it did act on these parts, especially the first. Where the colchicum was decidedly beneficial it produced three effects invariably; namely, it reduced the heart's action, it lessened the animal heat, and it abated pain. Its mode of operation, therefore must be referred, like that of other narcotics, to some power first exercised over the nervous system, by which the action of the heart, the animal heat, and the pain are ultimately influenced. The colchicum has been given with marked advantage in the form of powder, and some, I know, prefer this to any other preparation. In the administration of the tincture, the only cautions which I have found necessary is to give it in moderate doses, and not to continue it too long. It has been thought that the deposit of the tincture is highly pernicious, and I was once induced to believe it was so, from having seen sickness and other unpleasant symptoms follow a dose of the turbid tincture; but some accurate experiments, I understand, have been recently made which show, that an active principle of that nature does not reside in the deposit. Since the introduction of the depletory practice, bark has been almost entirely neglected, but is not improbable, as was lately suggested by an enlightened physician,* that it might sometimes be useful in

* Dr. Uwins—to whom I am indebted for having suggested to me the propriety of referring to the doctrine of critical days and to the question of contagion, respecting both of which, in consequence, some remarks have been added under the head of typhus in this edition. It has sometimes struck me that a more intimate connexion may exist than is commonly imagined between some of the apparently contagious diseases of the lower animals and those of man; and having forgotten to allude to the circumstances before, I should now be disposed to recommend it as worthy of serious observation, since it seems to have been strangely neglected. If any one had been told many years ago, that a certain matter from a cow would prove at all preventive of the small pox he might have smiled at the idea as perfectly ridiculous; but experience is constantly showing us relations in nature of which we had no anticipation, and it is highly probable, that other important discoveries will be made to narrow or annihilate certain contagious diseases.

warding off relapses ; and it certainly does contribute towards this effect after the subsidence of an attack of rheumatism, with laxatives, and proper precautions as to clothing and diet. But when the acute rheumatism did return, I have known it yield more rapidly to the colchicum than to any thing else ; though even in such cases, venesection has been sometimes, and purgatives always necessary, except where the strength was not sufficiently confirmed before the secondary seizure.

A few cases of one species of rheumatism have occurred to me which were fatal under every method of treatment, and these suddenly supervened in patients exhausted by a prior disease of severity. They were marked by extreme agitation of the whole frame, constant moaning, an anxious, impeded breathing performed, as it were, by fits and starts, a very small irregular pulse, and acute pains in some of the joints, and courses of the muscles. None of the patients survived many hours, and they seemed to die, from some spasmotic affection of the muscles of respiration, probably extending to the heart itself, the action of which was strangely disturbed from the first. In the ordinary cases of acute rheumatism translated to the heart, the surface of that organ often has a sort of tripelike appearance, from the lymph effused by inflammation ; but in the cases here particularly alluded to, nothing morbid was found about the heart, except that it seemed more expanded than natural, as if it had suddenly relaxed from a constricted state. In one instance, the spinal cord was examined in order to ascertain, whether it might be concerned in the train of symptoms, but nothing unnatural was discovered there ; nor indeed could the most careful examination detect any appearance sufficient to account for the death of the patients.

OPHTHALMIA.

Were I desired to adduce a particular disease, for the purpose of establishing the efficacy of blood-letting in the way so often recommended in these pages, it should certainly be a common attack of the acute or sub acute ophthalmia, because in both the effect would be more immediately manifested than in almost any other disorder. There is perhaps scarcely an ordinary inflammation more under the control of art than that of the eye, and yet there is perhaps hardly any in which we more frequently fail. The reasons are simply these. Instead of adopting decisive measures early, for the most part we satisfy ourselves with merely secondary ones, such as local bleeding by leeches, lotions, and the like ; and therefore we generally find the disease protracted and obstinate. Once more, I must earnestly protest against half-measures, especially in this affection, which involves the functions of an organ of such high utility and importance. In numerous instances I have seen the eye either greatly injured or totally lost from inflammation, the progress of which had not even been retarded by the ordinary routine of treatment. If any one wanted to have demonstrative proof of the usefulness of indecisive, and the efficacy of decisive bleeding he might easily obtain it in a recent case of ophthalmia. Abstract a small quantity of blood from the arm of any patient labouring under such an affection, and, provided it does not influence the pulse, there will commonly be as much pain and intolerance of light after the operation as before it. But let blood be taken away until the face turn pale, the pulse begin to flutter, or until some degree of faintness be evident, and the patient after the operation will most frequently be able to open his eyes, and look about him, expressing wonder at the change so soon produced. An experienced surgeon, with whom I have long had professional intercourse, al-

ways bleeds his patients afflicted with inflammation of the eyes from a large orifice, as they stand erect upon the feet, and this is the mode which I too have generally preferred; having found, as before stated, that it sooner makes an obvious and great impression upon the circulation than any other, and thereby enables us to attain our object by a moderate abstraction of blood. The tunica adnata, which before venesection had been completely red, will often be found comparatively blanched after it, with a most sensible relief in almost every other respect. In the majority of examples, I have not known it requisite to bleed more than once in this impressive mode, and even in the most urgent cases, rarely more than twice, when the inflammation was attacked at an early period; but then the general venesection has been almost uniformly succeeded by local blood-letting with leeches, scarification of the eyes,* brisk purgatives, blisters behind the ears or on the neck, and, sometimes by calomel and opium, where the disorder has been unusually obstinate. In all cases, indeed, I have used opiates after decisive depletion, and they have uniformly been more or less beneficial. As for lotions so universally advised, I have seldom recurred to them in the acute or sub-acute inflammation of the eyes, having effectually succeeded without them. Although the above remarks are designed to be mainly limited to the ophthalmia arising from common causes, yet they may be usefully applied to those inflammations of the eyes, which supervene the operation of couching and extraction: and I am the more anxious to mention this, because some oculists of distinction do not deplete sufficiently in them, but rather trust to cold applications, and other secondary measures, by which they may often deceive themselves, and disappoint their patients.

It has been recommended again and again in these pages that patients should be bled early in dangerous inflammations,

* Scarification of the lining of the upper and under eye-lids is often of very great service, and it should always be recurred to in severe or obstinate cases.

until an impression was made on the pulse, until in short the enfeebled state of the heart announced faintness or approaching syncope; but in doing the operation thus determinedly, the practitioner should always be prepared, without a moments loss of time to lay the patient flat down as soon as ever the indications of faintness or syncope approach, and to dash some cold water forcibly against the face, that the lungs may be fully inflated with air. Perhaps these directions may seem quite superfluous to the ultra-phlebotomist, who can never see any danger from copious bleeding, under any circumstances of carelessness after the operation; but the student should be told, that for want of the precautions above mentioned, very copious bleeding, I know, has led to a fatal result, where the syncope came on more suddenly than was anticipated, and where the practitioner lost his presence of mind. It is seriously to be regretted, that in systematic works, the practice of physic is made a sort of plain sailing, neither the rocks nor the shoals being pointed out in the charts which are there laid down. From all the inquiries which I have made, it would appear, that death from copious blood-letting is a most rare circumstance; and as where it did occur it was owing not to the quantity of blood drawn, but to a neglect of laying the patient at once down as the syncope came on, so I should be confident that it ought never to occur under proper management. Yet young children in particular should hardly ever be bled to syncope, for the convulsions which in them are so liable to accompany that state, might easily prove mortal.

Antimonial emetics have been given with great advantage in ophthalmia, but my own experience of their effects in this disease has been too limited to enable me to speak decidedly as to their general influence in it. From the universal introduction of purgative medicines, emetics have gradually fallen into undeserved neglect in many diseases, especially in those any way connected with the head; for in the latter there is much too common a prejudice against the *use* of emetics, which has perhaps originated from their indiscriminate *abuse* in some

serious diseases of the brain. In most affections seated about the head, where the arterial re-action is strongly developed, it is best to bleed and purge before the exhibition of emetics, as Sydenham has advised; and this practice will sometimes succeed very well in marked disorders of the brain, as for example in some cases of mania.

Even in chronic ophthalmia general venesection is frequently of more benefit than any other measure, and where the structure of the eye remains uninjured, it should be more commonly used than it is at present: but I must observe in this place, that when chronic ophthalmia is seated in the tunica adnata, and not the sequela of a previously acute inflammation, it is far more frequently symptomatic of some disease in the brain than has been supposed: and whenever it is thus a secondary affection of the cerebrum, it can only be removed by bleeding and other means, which remove the original and distant disorder. Yet chronic inflammation of the eyes themselves often arises from a gradual accumulation of blood in the lining of the under and upper eye-lids, which are thereby made to press upon, and to irritate the eyes into inflammation. In every case, therefore, of chronic ophthalmia, this membrane should be examined, by inverting the eye-lids a little with the fingers; and whenever it is found preternaturally distended with blood, scarifying it freely and repeatedly will generally be attended with the best effects. Small specks are apt to form upon the lucid cornea, in the progress of chronic ophthalmia, and so are small ulcers, which may easily be confounded, at first, with the former; but to prevent mistakes of this kind, a small ulcer may always be distinguished by its being indented in the middle, whereas a common speck is almost always prominent at that point. By having been mistaken for specks, I have known ulcers allowed to commit considerable ravages upon the structure of the eye. But if a solution of the nitrate of silver be opportunely applied, it usually soon heals ulcers of the cornea, and indeed often proves efficacious when they had existed for a considerable time; except when they are connec-

ted with irritations about the digestive organs, and then these must be removed by appropriate means before the ulcers of the cornea can be cured. It may finally be observed with respect to chronic ophthalmia, that the sulphureous waters of this country will frequently remove it, when every other measure had previously failed; and this is more especially the case when chronic ophthalmia is combined with the strumous temperament, a circumstance by no means uncommon.

TIC DOLOUREUX.

Boerhaave well knew, Dr. Johnson tells us in his biography, that the originals of distempers are often at a distance from their visible effects; and the justness of this observation, may at once be illustrated by a very remarkable example. It has been supposed, that tic doloureux is primarily seated in the nerves of the face, and the able and ingenious Dr. Parry modified this general hypothesis of the times, by placing the disease in the capillary vessels ramified upon the facial nerves. But, with every respect to the opinion of this distinguished individual, tic doloureux appears to me to be a complaint of the brain itself, to which the disorder in the face merely stands in the relation of an effect. This opinion has been impressed upon me by a careful examination of the cases which have fallen under my own eye, in the whole of which the affection of the face was preceded, and attended by clear manifestations of cerebral disease, such as pain, giddiness, confusion, or some other uneasiness in the head, more or less disorder in the functions of some of the external senses, with symptoms of congestion, or of increased action in the vessels of the brain;—and sometimes the stomach and liver were simultaneously or sympathetically affected, a circumstance not uncommon in many diseases of the sensorium. That tic doloureux should have its origin in the brain, will not appear at all surprising to those who

have directed their attention to the pathology of that organ ; since in several of the disorders to which it is liable, what might seem, at first sight, the most urgent symptom, is seated at a distance from its source. Indeed this happens in other diseases, as may be instance in certain forms of hepatitis, where the pain is most severe at the top of the shoulder, and in certain affections of the hip-joint, where it is most severe in the knee.

Considering how very little had hitherto been effected by treating tic doloureux as a mere facial disease, and being forcibly struck with the appearances that indicated its seat to be in the brain, I resolved to try, under favourable circumstances the power of decided bleeding and purging. The first two cases in which this treatment was pursued, had not existed six weeks, and both of them yielded to it without much resistance. It was afterwards adopted in three others, of as recent a date, with the same result ; and it was successful in another of much longer standing, by being followed up with calomel and opium. As in most other diseases of the brain, it has been usual with me in this to combine general with local blood-letting, and not only to continue the use of purgatives for some time, but also to apply blisters occasionally, either to the scalp or to the nape of the neck. From one case which I have myself seen, and from two others of which I have heard, it seems to me most probable, that the depletory practice will not generally succeed, in those examples of tic doloureux which have continued some years ; although, when judiciously employed, and succeeded either by an alterative course, or by small and repeated doses of arsenic, it will perhaps afford the fairest chance. Why the chronic may be very different from the recent tic doloureux, a little reflection will readily reveal. In the commencement, this disease merely consists in disordered action, but when it has continued a long time, that disordered action may have produced derangement of structure, or at least such a confirmed dilatation, or other morbid condition in the cerebral vessels as cannot be removed. It is certain that persons afflicted with tic doloureux may live many years,

and even sometimes have the appearance of good general health ; but it will, I believe, be found that they most frequently die suddenly at last from oppression of the brain, a circumstance which tends to strengthen the opinion here advanced, as to the original seat of this disorder.

In tic doloureux, however, little advantage is to be expected from any plan of cure, unless the strictest attention be paid to the diet, which should be spare, and exceedingly simple. In chronic diseases it is very common for patients to complain, that they derive no permanent advantage from any thing; for in fact as soon as ever the disease is lessened or removed, they are constantly liable to renew it, either by generating too much blood, or by creating some irritation, from irregularities in the diet. It is not enough that having once made an impression on the symptoms of the chronic disorder we should rest content with a sort of truce, in which it is apt to make frequent and at last formidable returns; but we should endeavor, by the most peremptory enforcement of a proper regimen, and by maintaining a regular action on the bowels, wholly to dislodge the lurking mischief. After all, tic doloureux is probably one of those disorders which finally will be found under the common influence of some narcotic; and in two solitary instances of long standing, which had resisted the ordinary treatment, considerable respites were obtained by small doses of the extract of stramonium. (z)

There is a peculiar affection of the brain, which is nearly allied to tic doloureux ; but instead of fixing on the face, the pain, which most attracts attention, is seated in one of the fingers, and most frequently under the nail. So very severe is this pain, that some patients whom I have attended could not

(z)One of the most valuable internal remedies at present known for the cure of this disease is, the carbonate of iron in pretty large doses, for the introduction of which, as a remedy in tic doloureux, we are indebted to Dr. Hutchinson. Prussic acid has also been used recently with success, so likewise has cicuta, but all medicines in this disease, are much assisted by active cathartics.

be convinced but that the disease was solely confined to the finger, though they were afflicted with giddiness, and what they called nervous head-aches, noise in the ears, occasional dimness of sight, some degree of deafness, and other alarming symptoms. There is seldom redness or much swelling perceptible on the affected finger, but it is generally sore to the touch, and the pain at times greatly abates, and again becomes urgent. This disorder requires a treatment similar, to that of tic doloureux, and local applications are of no utility. There is one case of this kind on record, in which amputation of part of the finger, afforded no relief; and another, has been reported to me on good authority, where the operation likewise completely failed. Nor will this appear surprising when we consider, that the pain of the finger is dependent upon a distant derangement, and therefore, can only be removed by removing the cause from which it proceeds.

Periodical head-aches are also closely related in their pathology to the two diseases just mentioned, for, like them, they most frequently arise from congestion or disturbed action in the vessels of the brain, and are therefore remediable upon similar principles. From an extensive experience I am authorised to affirm, that they may in general be speedily removed by one decisive blood-letting, with a few brisk purgatives, succeeded by the cautious exhibition of Dr. Fowler's solution of arsenic; a preparation which should always be given immediately after a light meal, otherwise it will be apt to disagree with the stomach. In two instances only, I have known the arsenic fail, after depletion in the periodical head-ache, and both being complicated with hepatic disorder, they were afterwards cured by calomel and opium.

CALOMEL AND OPIUM.

Much having been said about calomel and opium in the inflammatory diseases, perhaps it may be satisfactory to inquire before concluding this section of the work, who may be entitled to the merit of introducing this combination, as a *general* remedy for inflammatory affections. It is well known that quicksilver, was a component part of an unguent, which Rhazes used and recommended in cutaneous disorders; that the preparations of this mineral were long afterwards most successfully applied to the cure of syphilis; and that, more recently, their efficacy was established in hepatitis, first by Eastern, and afterwards by European, practitioners. Mercury, then, was first successfully employed in three different kinds of inflammatory diseases, and though with the most signal advantage in two of them, no person as yet had inferred its *general* utility in inflammation; the honour of that discovery having been first reserved for the late Dr. Robert Hamilton of Lynn Regis. This author candidly acknowledges, that, at the close of the year 1764, a naval surgeon who had served eight years in the East Indies, informed him, that the established method of curing hepatitis in that country was by mercury, after venesection, and the exhibition of a gentle purgative. Some patients falling ill of that disorder at Lynn Regis, soon after the arrival of his friend, Dr. Hamilton tried the method of cure by mercury, and it proved successful. He used the ointment in very few instances, and gave no preparation internally but calomel, to which, however, he shortly found it necessary to add opium, in order to relieve pain, which answered that purpose most effectually. This success led him into the following train of reasoning. The efficacy of mercury, in ophthalmia, had been long established, and its specific virtue in every symptomatic venereal inflammation: its liberal use in modern way of inoculation

had also shown its power of abating inflammation ; while its success over the hepatitis in India, and in the late instances of that disease which had passed under his own eye, were fresh proofs of its excellence. Reflecting on these things he was led to consider, that the general cause, be what it may, of an inflammatory diathesis, must be the same, whether the inflammation is seated in the menings, pleura, lungs, liver, diaphragm, or any other internal membranous part ; and, therefore, the circumstance of locality could make little or no alteration in the general intention of cure. From these premises the following deduction, according, to his view, naturally arose ;—that as mercury had been so successful an agent in the several instances above mentioned, it was reasonable, from analogy, to conclude that it would prove equally so in every kind of inflammatory disease ;—wherefore he was determined to give it a fair trial in every one, as opportunities offered for that purpose. Peripneumony was the first disease which fell under his care, after this resolution was made ; and he informs us, that the success of ealomel and opium in it filled him with astonishment. Afterwards he found this combination equally efficacious in pleurisies, in phrenitis, and paraphrenitis ; in inflammations of the intestines and other parts within the abdomen, and in child-bed fevers, with highly inflammatory symptoms. Having succeeded in curing local inflammatory diseases by this practice, he tells us, that his experiments were next directed to what he calls a malady of general inflammation, the acute rheumatism ; that he had the satisfaction to see this also give way most readily to it, and that himself as well as some of his friends repeatedly experienced, in their own persons, the most salutary effect from it, when attacked by that distressing disease the gout. It appears likewise, that he saw equal advantage result from the ealomel and opium, in inflammations arising from external injury, either in the head, thorax, or abdomen, as he experienced in those arising from an internal cause.

Having named the disorders in which his first experiments

proved successful, he proceeds to give a detail of his general mode of practice since that period in all inflammatory distempers; from which it is evident, that he did not entirely trust to calomel and opium, their administration being premised by evacuations. Blood was directed to be taken away in the beginning of the disease, in quantity proportioned to the violence of the inflammatory symptoms, and to the age and constitution of the patient. The bowels were next ordered to be opened, either by a clyster, or more commonly, by a gentle purgative. After which, a composition, consisting of from one to five grain doses of calomel, and from a quarter to a whole grain of opium, was administered every six, eight, or twelve hours, according to the age and strength of the patient, and to the degree of inflammation; a plentiful dilution of barley water, or any other weak, tepid beverage, having been at the same time strictly enjoined. The patient was generally very much relieved, after having taken three or four doses of this medicine in the course of twenty-four hours; and the distemper commonly gave way in twenty-four hours more, and soon terminated afterwards. But if relief was not obtained within the first twenty-four hours, and the high inflammatory symptoms remained with little or no abatement, which the author affirms was rarely the case, he ordered more blood to be abstracted; and not only exhibited the mercurial composition more frequently, but continued it until the distemper resolved, by sweating, purging, or ptyalism. If this curative mode was employed early in the disease, the patient's recovery was soon accomplished, whatever might be the operation of the mercury, whether it acted on the skin, bowels, or salivary glands. But if employed late, it was attended with more uncertainty, though recovery most commonly took place the soonest when the salivary glands were affected. If the fever was violent, accompanied with a dry, contracted, arid skin, emetic tartar, and sometimes camphor, was added. And the author states, that he never found any medicine, either in a simple or aggregate state, produce so speedy and effectual a relaxation of the skin, and a plenti-

ful perspiration, as a composition of calomel, opium, emetic tartar, and camphor, which also has the advantage of increasing the evacuations by stools and urine. He appears to have frequently directed blisters to be applied, especially at an advanced period of any visceral inflammation, conceiving them to be very powerful auxiliaries to the internal method of cure. After the distemper was evidently on the decline, he seems to have been rather partial to the exhibition of bark, particularly in the acute rheumatism, but always took care to keep the bowels soluble.

It had been alleged by some, says Dr. Robert Hamilton, that, as other powerful medicines had frequently been joined to the calomel, the cure might, with greater probability, have depended upon them than the mercury. He candidly acknowledges, that he always deemed opium of the most essential service, by relieving pain; and allows that he thought the emetic tartar and camphor sometimes contributed to the cure. But he pointedly remarks, that he had very often seen cases where emetic tartar, camphor, and opium, assisted by saline remedies, had been employed without the smallest relief in inflammatory diseases, which, nevertheless, gave way in a short time on calomel being added. And he states, as a fact well known at Lynn Regis, that calomel and opium had very often succeeded without any other addition, from the first exhibition of mercury there to the then present time, in inflammatory diseases: and that even with the additions above named, many inflammatory diseases showed no amendment until the salivary glands were affected, a circumstance which was generally regarded, by himself and other practitioners, as the happiest presage of recovery. He concludes his summary account, by declaring that the subject of it is not the hasty result of a few month's practice, but that it is founded on the solid basis of nearly eighteen years' successful experience, to which many of the principal practitioners of the town where he resided, could bear the most ample testimony.

The above is an imperfect abridgment of the paper original-

ly published by Dr. Robert Hamilton,* which, notwithstanding some of its defects deserves to be engraven in letters of gold, on account of its great practical application and utility. The defects alluded to are, that both the lancet and purgatives, at the outset, appear to have been used too sparingly by the author; and that the doses of calomel recommended were either too small, or too seldom repeated. At least, if my experience has not greatly deceived me, his method of cure, if strictly followed, would often be inefficient in highly acute cases, which obviously require, by reason of their rapid progress, a more powerful and prompt application of remedies. Still, however, it must be confessed, that his principle of the successive use of bleeding, of purging, and of calomel and opium deserves to be deeply regarded and highly admired; and so far as he advanced in the treatment of common membranous inflammation, that, until some greater discovery be made, perhaps little more can be done than to modify the application of his measures.

In what are called idiopathic fevers, in those fevers in fact which commence without any decided signs of topical inflammation, and which advance under a continual excitement, calomel should be given from the first as a purgative, determined to the bowels by some other auxiliary: because free purging, by lessening this excitement daily, most frequently wards off inflammation, and where in despite of it, inflammation does not occur early, then general or local bleeding should be subjoined, and calomel so managed as to produce its specific as well as purgative influence; but where the inflammation arises at a late period of the excitement when the general tone of the system has been exceedingly relaxed, it will mostly be better to avoid bleeding altogether, and to trust to the other measures assisted by blisters. There is, however, an intermediate stage,

*See, in medical Commentaries, for the years 1783—84, vol. ix. p. 191. a Letter from Dr. Robert Hamilton, Physician at Lynn Regis, to Dr. Duncan giving an account of a successful method of treating Inflammatory Diseases, by Mercury and Opium.

one between the first and the last, in which inflammation is apt to arise, and in this local bleeding is often highly advantageous, even when contagion has been the exciting cause; and where the fever has originated from cold or any other common cause, general bleeding to a moderate extent is sometimes highly beneficial, because the fever at that time is attended with less relaxation than would have been the case if it had arisen from contagion. But in continued fevers which are complicated with inflammation from the first, it will be best, when sufficient depletion shall have been premised, to administer calomel as a purgative and specific at the same time. In such affections, indeed, the shortest and most certain way of procuring the specific, is through the purgative operation of calomel, for the high excitement resists the agency of calomel, and the intestines are usually so lined with morbid mucus as to prevent its absorption, unless this mucus be brushed away, by purging, from the mouths of the absorbent vessels. One large, or two tolerably free doses of calomel, therefore, may be administered in the day, followed up by some other aperients to induce plentiful evacuations before bed-time; while to accelerate its most complete absorption, during the night it may be given in divided doses, combined with opium where there is pain in the chest or belly, or much general irritation. Some have contended, that opium is dangerous in inflammatory diseases, inasmuch as it might mask the symptoms, and lull the practitioner into a false and fatal security. But this reasoning is more specious than solid, for after sufficient depletion, no remedy has appeared to me more efficacious.—Every attentive practitioner must have remarked, that in many inflammatory affections, where the lancet and purgatives have been boldly applied, great universal irritation succeeds, which may sink the patient if not timely allayed. For this species of irritation opium is peculiarly fitted, generally calming the turbulence of the system, and inducing tranquil sleep. Yet as a subdued degree of the topical affection is frequently combined with this irritation, it is most prudent to combine the opium with

calomel, a combination which obliterates every vestige of topical disease, by equalizing the circulation, and also, by inducing in some instances a peculiar relaxation of the whole habit.

While the system continues under the full influence of the fever, while the skin continues hot and the pulse quick, ptyalism is not easily produced, and the most timid may then give calomel with far more freedom than in those diseases unattended with a hot skin and a quick pulse. But as soon as ever the fever begins to decline, calomel should be given most cautiously, because as the system is then verging towards its natural state, its specific action will be more readily induced; and where during the continuance of the fever, it either acts freely on the skin or kidneys, while it keeps the bowels soluble, the practitioner need not be impatient about the appearance of ptyalism; for the modus operandi of calomel is to equalize the distribution of blood, to restore the natural balance of the circulation by communicating a power to the capillary system of vessels, which enables them to resume their secretory offices as before. When calomel is prescribed, even in conjunction with opium, it sometimes acts more forcibly on the intestines than desirable, producing many copious dark stools, followed by small frequent slimy or bloody discharges. Whenever these occur, the bowels should be cleared by a moderate dose of cold-drawn castor oil in the first place, and then opiates with mucilaginous drinks will speedily remove the irritation. When opium is given expressly to diminish pain or irritation, the first dose should be tolerably large, say two or three grains, and the subsequent ones of course may be smaller.

- But it must be constantly remembered, that opium ought not to be exhibited in visceral inflammations, until an impression has been made by free evacuations; except indeed where there is excessive pain, and then it may often be used with great advantage in conjunction with venesection, particularly in inflammation of the bowels. In some affections of the abdomen, attended with spasm of the intestines, or with unusual irritation, I have occasionally found it impossible to move bowels, with-

out the previous exhibition of opium. In such cases, about a drachm of the tincture will often do very well, made with two ounces of mucilage into an enema, which should not exceed that measure, else it will not remain long enough to produce a proper effect. When opiates fail in allaying the pain or irritation, the tepid bath sometimes proves highly beneficial, especially after depletion by the lancet and cathartics. If a warm and universal perspiration break out soon after its use, and continue for some time, it is generally a most favourable sign, few cases having been fatal in my practice where it occurred. When calomel and opium do not excite perspiration, the opium may be omitted, and the compound powder of ipecacuan sometimes substituted with great advantage, for this preparation, added to the calomel, often powerfully determines the blood to the surface.

As far as the constitutions of patients are concerned, mercury is most suitable to the robust. Hence in general it is better borne by males than females, by the active than the sedentary, by the well than by the badly fed, and hence, too, in general it is also better borne by the hardy inhabitants of the country, than by their degenerate offspring who have constantly resided in large crowded cities. Whatever decidedly creates the nervous temperament, whatever renders the body highly sensitive, most certainly makes patients less capable of sustaining mercury as an alterative; and when such, therefore, labour under fever, it will for the most part be adviseable to give calomel simply as a purgative; for in them if it be pushed on to produce any thing like ptyalism, it will frequently occasion a tremulous tongue, an irregular action of the heart, and other symptoms of high irritation. In the febrile complaints of infants, too, for the most part calomel should only be prescribed as a purgative, because they partake of the nervous temperament by having an exalted sensibility.—For the same reason, in those secondary fevers which come on when the subjects of them are weak and emaciated from the previous attack, calo-

mel ought only to be given as an occasional cathartic, when the bowels are loaded; but the excitement having been once lessened by evacuations from that quarter, moderate doses of opium will often answer an excellent purpose.

CHAPTER IV.

B R A I N - F E V E R

OF

D R U N K E N N E S S .

THERE is an interesting disease, which follows intoxication and as it forms a sort of connecting link between mania and fever, and as it has been frequently presented to my observation, I shall now offer a few summary remarks, relative to its nature and cure.(a) It is well known that a simple fever is frequently produced by intoxication, short stages of oppression, excitement, and collapse succeeding each other after the debauch: they are generally so mild as to terminate spontaneously, without immediate prejudice to health; but sometimes medical assistance is required, to prevent their assuming a threatening aspect. In other instances, intoxication has a more powerful influence, and leads to inflammations in some of the vital organs, or occasions venous congestions, which are not followed either by high or regular excitement of the arteries.

(a) Dr. James Jackson of Boston in his "Text book of a course of lectures on the theory and practice of physic," introduces this disease among those of the nervous function, and constitutes it a genus under the name *Cephalitodes*, from its slight resemblance to *Cephalitis*, or inflammation of the brain.

There is only one species, and this appears under the name *C. Ebriosus*, an appellation more appropriate, we think, than any one that has hitherto been offered, and one which we hope will take the place of the hundred others, with which this disease seems at present to be burdened.

The disorder in question is generally of the last mentioned kind, for it seems to be accompanied with partial congestions of the brain and liver, from which, together with nervous irritation, it perhaps derives most of its peculiar characters.

This disease most frequently occurs in *habitual* drunkards, (b) and especially when, after repeated fits of intoxication, they suddenly lessen or leave off their ordinary stimulus for a time. The first feelings of indisposition are lassitude, indistinct chills, loathing of food, uneasiness in the head, disturbed short slumbers, anxious countenance, and oppression at the pit of the stomach ; and these are followed by retching or vomiting, white moist tongue, wildness and quickness of the look, weak rapid pulse, general irritability, watchfulness, tremors of the hands, and dampness of the skin increased by the slightest exercise. Confusion of mind, or forgetfulness supervenes, which passes on to a state closely resembling mania. The patients suppose that their affairs are ruined ; or that certain persons have conspired to poison or shoot them ; or that their friends have deceived or deserted them ; or that they are confined against their inclination in a strange place. Occasionally they imagine that they see frightful objects, the impressions of which are so forcible, that they call loudly for assistance to drive them away. At other times, they declare that vermin are crawling over the bed or about their clothes ; or that bright or dark spots are floating in the atmosphere ; sometimes they fancy that they hear remarkable noises in the room or at a distance ; and in other examples, alternately listen and speak, as if they were conversing with one that was

(b) So far as I have had an opportunity of observing this disease, the subjects are not *habitual* drunkards, on the contrary they are for the most part habitual *drinkers*. I think there can be no objection to this distinction, since the fact is undeniable that many men are in the practice of taking large quantities of spirits without at any time being drunk, in the general acceptation of that term. Such, it seems to me, are by far the most frequent subjects of this disease, though confirmed drunkards are sometimes attacked, and when they are, I have observed they generally fall victims.

present. They are often intent upon calculations, buildings, projections, counting or picking up money, settling accounts, or some such imaginary employment ; and if you attempt to address them, they will either unheedingly pursue their occupation, or abruptly tell you that they must not be interrupted. In short, they are either earnestly engaged with business immediately before them, or their attention is wholly engrossed by conspiracies, suspicions, dangers, or the like ; and it is remarkable to observe, how the expressions of the countenance vary, according to the nature of the predominant impressions.(c) If the patients be flatly contradicted, they are mostly very pertenacious in their opinions, and easily excited into passion ; but if they be soothingly dealt with, they will now and then answer certain questions mildly, and even distinctly ; nevertheless, if many interrogations be put to them in succession, they grow confused, and relapse into their former incoherence. Sometimes they mistake the names of things, or the pronunciation of words ; and although they generally recognise most of their acquaintances, they load some of them with abuse on trivial occasions, and request the friendly intercession of others.

Most of the symptoms enumerated continue from four to ten days, but cases less immediately urgent may be considerably more protracted. Some examples, indeed, which occurred to me existed, from first to last, nearly six weeks, and two assumed the character of confirmed madness, which were finally cured ; so that there can be no question but this disorder may identify itself with the true mania, in peculiar sub-

(c) Sometimes patients in this disease apparently enjoy the most pleasing train of associations. The beauties of nature and of art often engage their attention ; extensive landscapes interpersed with fragrant flowers, lofty trees, splendid edifices, meandering streams and beautiful animals present themselves before the delightful maniac. At such moments they seem lost in the ecstasy which their disordered imaginations have created. This state, however, does not continue long ; the mental bias being for the most part of the melancholy cast.

jects. When convalescence is not restored within the first month, there will be a risk of long continued, if not permanent alienation of mind; as the most strongly marked cases terminate successfully or mortally before that period. If a tranquil and long sleep can be procured in the commencement of the disease, recovery will commonly follow apace; although I once lost a patient unexpectedly in convulsions, after he awoke from an apparently quiet sleep of six hours. Indications of coma or convulsions; perpetual watchfulness; excessive irritation; violent and often renewed struggles; very rapid and thready pulse; frequent vomiting; extremely cold skin; subsultus tendinum; and especially small contracted pupils, with a degree of stabismus, are among the most unfavorable signs. Those patients who have been driven to intoxication from some great affliction, are generally in imminent danger; for during the progress of the complaint, their raving incessantly turns upon the recent calamity, and produces an irritation and exhaustion most difficult to be counteracted. But confirmed drunkards, who have previously laboured under chronic hepatitis, or some similar organic affection, perhaps stand the worst chance; at least I have seen two subjects of this kind who sank rapidly under this disease.

In all I have now attended forty two cases of this disease, and out of the first sixteen, four proved fatal, but only three of the remaining twenty six; the greater success in the latter having appeared to me chiefly to depend upon some differences made in the method of treatment. No more than two opportunities have occurred to me of examining the bodies of patients after death; and in both of these, slight congestions were found in the brain and liver, while the other viscera appeared natural. Yet I have known apoplexy terminate fatally, without more decided evidences of derangement having been exhibited by dissection; and it is an established fact, that in some subjects very moderate congestions of the brain will extinguish life. This disease invariably occurs during the existence of that general collapse which succeeds intoxication,

when the tone of the heart and arteries is diminished, and when the venous system must consequently be more or less in a state of congestion; and of this congestion the brain more especially appears to participate.—as may be inferred from the uneasiness felt early in the head, the tremors of the hands, the subsequent derangement of mind, the occasional supervention of coma or convulsions, and the appearances on dissection. Yet the sense of load, which occurs at the commencement about the epigastrium, the dark unnatural colour of the stools, and the two morbid examinations before noticed, render it probable, that the Liver is also usually affected. While it is equally evident, that the tone of the stomach is greatly impaired, and the functions of the skin much disordered on the first attack; and though, during the progress of the disease, the stomach generally acquires the power of retaining whatever may be exhibited, the skin continues moist and relaxed. The peculiarly irritable state of the nerves induced by previous habits, the collapse of the system at the time of sickening, the venous congestions, and the subsequent efforts of arterial excitement, all tend to produce and modify the phenomena of this disease.

In very confirmed, old, or enervated drunkards, the general collapse of the system, at the time of the attack, seems to prevent the development of any thing like an equable excitement; and we find the heat of the surface in that fluctuating or partial state, which often attends congestive fevers of the irregular kind. But in young or vigorous men, who have not been long or regularly accustomed to inebriation, sometimes a stage of general though imperfect excitement follows that of oppression and these different characters of the disease, as modified by peculiarity of constitution, should always be borne in mind, for they require correspondent variations in the treatment. In debilitated and habitual drunkards, for instance, I have invariably seen blood letting prejudicial even at the onset; and though mild purgatives are at that period beneficial, they cannot be safely exhibited at an advanced

stage. On the contrary, in constitutions that have not been shaken by reiterated drunkennes, I have known early and moderate venesection of much use, especially when followed by active aperients. For a long time I firmly believed that depletion was always dangerous in this disease; but as I had imbibed this prejudice from having witnessed its injurious effects in the advanced stages, so it has been removed, by my having since seen its benefits in the beginning of numerous cases. Yet I am fully persuaded, that there are not many instances where the lancet is really requisite; (d) and also, that there are few where purgatives should be omitted in the commencement.— On account of former habitudes, patients must generally be allowed a limited quantity of diffusible stimulus, but particularly those who have long been hard drinkers; since it is to them what ordinary food is to temperate persons,—it cannot be abstracted for any length of time without exhaustion being induced: indeed, when judiciously administered in this disease, it is often highly serviceable in allaying irritation, and communicating an energy to the heart and arteries, by which the equilibrium of the circulation may be ultimately restored. But as these are merely desultory hints, a summary and connected plan of the treatment shall be delivered.

In the first stage of this disease, the former mode of life, and

(d) In looking over the numerous accounts given of this disease in the Journals of our own, and foreign countries, there seems to be a general agreement respecting blood-letting, nearly all condemning the practice. Dr. Potter, of Baltimore, however, forms an exception. This gentleman believes the brain to be the seat of the disease, maintaining that its proximate cause depends either upon inflammation of the membranes of this organ, or upon a venous congestion in the vessels of the brain and its membranes. According to this view of the subject the disease is no more nor less than genuine phrenitis, which no practitioner that I am acquainted with will admit. We believe Delirium tremens to be strictly a nervous disease, which originates in the stomach, and which in consequence of the extensive relations of this organ extends ultimately over the whole system. In a large majority of cases when venesection has been resorted to, I have never been certain that any advantage has resulted from it. The delirium seemed equally high after as before, and no tendency to sleep manifested itself from the operation, yet many cases may have occurred where it has been necessary to let blood.

the present condition of the patient, must be accurately investigated. If it should happen, that he has long been addicted to the free use of spirituous or vinous liquors; that the pulse is weak, and the face very pale; that the surface is clammy and cool, or in a variable and irregular state as to temperature; and that there are strong signs of muscular relaxation,—why then all thoughts of venesection must be abandoned, even at the beginning. The abstraction of blood, under these circumstances, would only increase the venous congestion, by further diminishing the force of the heart and arteries; and would be almost as reprehensible as in the last stage of the simple or congestive typhus. In such cases, the bowels should first be opened by moderate doses of calomel, jalap, and the sulphate of magnesia; care being always taken to support the strength under their operation, by an occasional draught of warm negus. When the bowels have been sufficiently evacuated, about two or three gallons of tepid water, strongly impregnated with salt, should be dashed over the whole skin, which ought to be immediately dried, and well rubbed with warm flannels. After this operation, the patient should be put to bed, and about forty or fifty drops of the tincture of opium exhibited in a little warm wine, and repeated at the interval of two or three hours, provided sleep be not in the mean time procured. This treatment will occasionally restore the patient without any other means; but as in a large majority of cases, it only alleviates the symptoms, it will generally be requisite to follow it up by repeated doses of calomel and opium, which, together with the use of the tepid affusions, will rarely fail. Two or three grains of calomel with a grain and a half of opium, every six or eight hours, will be sufficient doses of these medicines on the first day of their administration; and after that period it will commonly be better to lessen the quantity of the opium; and as soon as the action of the calomel is at all developed on the gums or salivary glands, it should be entirely omitted, as its effects, for the most part, continue to increase for a few days afterwards. The tepid af-

fusions may be used three or four times in the twenty-four hours, if the patient should be very furious or restless, but in general twice will suffice in that term. If the water be well impregnated with salt, the skin properly rubbed, and the opiate exhibited in warm wine after their application, a tendency to quietness or sleep most frequently succeeds; nay, there will not only be a diminution of the nervous irritation, but likewise an improvement in the state both of the pulse and the skin. If under these measures the bowels should not be daily moved, some mild aperient, such as castor oil, may be occasionally exhibited; but as weak and habitual drunkards cannot long bear even moderate evacuations without prejudice, laxative enemata should generally be substituted after the fourth or fifth day.

The exhibition of diffusible stimuli must be regulated, first by the preceding habits, secondly by the effect produced, and thirdly by the quantity of opium administered. (e) A little of their usual beverage must be given now and then to habitual drunkards; and if it should be found to lessen the frequency of the pulse, the general irritation, and the tremors of the hands, we have certain tests of its utility; but if it should quicken the pulse, augment the irritation, and increase the tremors of the hands, it must be omitted, and malt liquor substituted. By reason of such patients having been long accustomed to stimulation, they can bear large and more frequent doses of opium than ordinary persons; and when it is freely exhibited, it will seldom be necessary to give much wine or spirits, even to the hardest drinkers. At the same time, as the leading object of the administration of this drug is to remove irritation, and induce sleep, its effects should be assiduously noted, that

(e) Those who advocate the necessity of employing ardent spirits, do it on the ground that the long continued use which patients of this class have made of it, has established a kind of *second nature*, and that this state is to them what a different condition of the system was before such habit was acquired, consequently that it is indispensible to allow them more or less of some diffusible stimuli: but we apprehend there are very few cases where a habit has been acquired, which it will not do, at once, to break off.

it may not be too liberally given. However efficacious opium may be under judicious management, I have seen and heard enough to be fully convinced, that it is a very perilous practice to administer it in too large and repeated doses, since apoplexy, coma, or convulsions, may be thereby produced.(f)

When this disease occurs in tolerably robust subjects, who have been addicted only to occasional intoxication, purgatives must be more liberally prescribed, during the first two or three days in particular, than in habitual and enfeebled drunkards; and though in the latter, opium may often be given with advantage at an early period, yet in the former, experience has taught me, that it should hardly ever be exhibited until the bowels have been freely and frequently evacuated. If I had sooner known the necessity of this precaution, I believe that my success would have been greater; but as I fell into the error of administering opium indiscriminately in every stage and variety of this complaint, I am most anxious that it may be corrected here, for the sake of others. Even in *habitual* drunkards, I am quite confident, that it is always best in the beginning of the disease, to open the bowels before the exhibition of opium: and to *occasional* drunkards, this observation

(f) In regard to the use of opium it is contended that as sleep is the only cure for the disease, we ought to resort to this article because it is the best narcotic we possess for affecting this object. This, *a priori*, seems plausible enough, but the weight of evidence, as given by practitioners, since Dr. Sutton published his views on the subject, does not appear to support this position. At least so great is the quantity requisite to effect the object intended, that in, not a few cases, the remedy, to use an old adage, becomes worse than the disease. It appears to me, that employing opium, in large doses, in a disease produced by an inordinate use of ardent spirits, is doing little else than changing the *spur*, since our author tells us that he had a patient in whom the disease occurred from the use of opium. Now in treating this patient our author did not, nor would any one else, think of administering large and repeated doses of opium, with the hope of success, any more than he, or any one else would prescribe large doses of alcohol to drunkards laboring under this disease. We think our author's remarks upon the use of opium very judicious and can recommend an attentive perusal of them to all who may have occasion to combat this curious malady.

may be extended with increased force, since in them the purgatives must be employed, not only at the onset, but during the progress of the distemper. In such persons, I mean occasional drunkards, it has been customary with me for some time, to use purgatives and the tepid affusions in the day, and calomel and opium in the night; and this plan, combined with a light diet, has rarely failed of success. In some few instances of this nature, I have known venesection requisite soon after the first seizure, when the brain appeared more than usually disordered by venous congestion, or arterial determination; but rarely more than eight or ten ounces were abstracted at once, and the operation never repeated beyond the second time. So far as I have observed, blisters are hurtful in every stage and modification of this disease; by increasing both the nervous irritation and the fever, they make the patient more restless and watchful, and thus exhaust his strength,

In occasional as well as in habitual drunkards, purgatives must be limited to the early periods of the disease; because they are most pernicious in the advanced stages, to which opium and calomel are most suitable; the one to allay irritation, and the other to equalize the circulation. Habitual generally require larger doses of opium than occasional drunkards; and wine is commonly the best cordial for the first, and good malt liquor for the last. The advanced stages of this disease are generally marked by a small and excessively rapid pulse; cold as well as clammy skin; imperfect utterance; low muttering delirium; or sudden, short fits of frenzy followed by heaviness and insensibility; startings of the tendons; a frequently stretched out and very tremulous hand; a want of correspondence in the pupils; general prostration of muscular power; and difficulty of deglutition. When several of these symptoms are united in any instance, every species of depletion is of course out of the question; indeed that is generally the case when the worst forms of this disease have existed several days; and therefore the time of their continuance should always be precisely ascertained, before the practitioner ven-

tures to prescribe. Under the most unpromising appearances, a combination of calomel and opium will sometimes succeed; and whenever there is ground for doubting the propriety of evacuations, it should be administered in preference to every other expedient. If it should be asked, how it is conceived that opium operates in this disease, I confess myself incompetent to give a full or satisfactory answer, and could only say of it as Cicero said of two other medicines:—*Quid scammoneæ radix ad purgandum, quid aristolochia ad morsus serpentum possit, video: quod satis est: cur possit, nescio.** It is truly remarkable, that one of the patients whom I attended was a female, who had long been in the habit of taking opium to a great extent, and who was attacked with this disorder on suddenly lessening the doses of her favourite drug. An universal collapse was the first effect, and that was succeeded by irritability of the stomach, dampness of the skin, tremors of the hands, pain in the head, watchfulness, and wandering of the mind. It appears that when, in a state of health, the energy of the constitution has been sustained by diffusible stimuli, their sudden abstraction or diminution so reduces the tone of the heart and the arteries, that they cannot maintain the natural equilibrium of the circulation; and that consequently there is an unusual accumulation of blood in the veins, by which the system is either oppressed, or roused into certain degrees of re-action, according to its condition at the time. Agreeably to this view we find, that those persons who freely indulge in the use of opium or strong liquors, are very liable to congestive and inflammatory diseases, and also to venous hemorrhages. It would lead me too far from my present subject, to point out the various effects of venous congestions; but I may observe by the way, that what are denominated passive hemorrhages, and one class of dropsical diseases, are chiefly dependent upon

* De Divinatione lib. prim. pag. 11, M. Tullii Ciceronis Opera, cum Dilectu Commentariorum. Edebat Josephus Olivetus, Academiæ Gallicæ XL Vir. Tomus tertius, qui Philosophorum alter. Editio tertia, emendatissima. Genevæ, apud Fratres Cramer. M.DCC.LVIII.

them. In many diseases, which are supposed to arise from pure debility, the venous system is over-loaded with blood, while the action of the heart, and of the whole arterial circle is diminished in force, though it may be increased in frequency; and this loss of balance seems always to take place in the first stage of the disease of drunkards here considered, nor does the circulation appear to be perfectly equalized, at any period of its progress.

For this peculiar complaint there is yet one remedy which I have omitted to mention, that it might be made more prominent by standing alone. Perhaps few practitioners would, *a priori*, suppose, that the cold affusions could be safely, much less advantageously employed in such an affection; and yet this is actually the case, as can be proved by the most indisputable evidence. About three years ago, my friend Dr. Ramsay, of Newcastle-upon-Tyne, mentioned to me, that he had frequently applied the cold affusions with much benefit in the early stages of the brain-fever of drunkards, when the surface was covered with sweat. Resting confidently upon his recommendation, I determined to try this treatment, as favourable occasions offered. The first patient on whom it was applied was an athletic young man, who had lately drunk very hard, and who has only been ill a few days. About three gallons of cold salt water were dashed forcibly over his naked body, while he was in a state of profuse perspiration. Before the employment of this measure, he had been extremely furious, but after it, he became quite tractable, went to bed, and had some tolerably quiet sleep. The symptoms returned on the following day, and the cold affusion was again applied, with the same result as before; and from this period the recovery was rapid:—nor were any other means used, except an occasional opiate and purgative, with a little wine and light nutritious soup. The second patient who underwent this practice was also a strong young man, though his case materially differed, in some respects, from the former. After a severe course of drinking, he was attacked with an inflammatory disease, which re-

quired purgatives and the antiphlogistic regimen for its removal. During his convalescence, his friends thought him rather eccentric in his manner ; and though no positive disorder of mind could be detected for two or three weeks, it soon became quite apparent after he commenced his ordinary business. His memory was observed to be very defective, and he seemed in a perpetual bustle ; he contracted for a house with one person, for a ship with another, and was not more restless during the day than watchful at nights. When I was first requested to visit him, the mental derangement had been obvious for three or four days : on my entering the room, he came forward, shook me heartily by the hand, declared he was glad to see me, and appeared to be in high spirits. The skin was bathed in sweat, his tongue moist, his pulse quick, and the hands slightly tremulous. As I was proceeding to ask him some questions, he suddenly interrupted me, and said that as he expected letters of importance by the post, he knew that I would readily excuse him. His wife endeavoured to detain him, but he burst into a violent passion, and, forcing the door open, immediately left the house. Some acquaintances were shortly sent after him, but he had rambled so rapidly from place to place, that it was several hours before he could be found. On the first opportunity which offered, the cold affusions was tried, and it calmed the patient exceedingly :—it was repeated two or three times afterwards, and proved so highly beneficial, that merely an occasional aperient and opiate were necessary to complete the cure. In little more than a week from the commencement of my attendance, this man was correct in his mind, and has since continued well in all respects.

Without reporting more cases, it may be added, that I have never used the cold affusions but at an early period of this disease, and on those patients who appeared to have much constitutional vigour ; and that I have not only given warm wine and water immediately before and after their application, but dried and rubbed the skin well with warm flannels, by way of supporting the *vis vitæ*, and ensuring sufficient re-action. In all

cases of a suspicious nature, I have invariably preferred the tepid affusions, but have found that they require to be followed by purgatives and opiates or by opiates and calomel. It has been already stated, that I received the first hint of the utility of the cold affusions from Dr. Ramsay, whose professional eminence and private worth are sufficient sanction for any practice that he might recommend. Yet as a further testimony in favour of this method of treatment, it may be mentioned, that Mr. Gregson, of Sunderland, without any knowledge of what Dr. Ramsay had done, has long been in the habit of occasionally using the cold affusions in the earlier stages of this disorder: his general practice, too, so far accords with mine, that he has sometimes found small or moderate bleedings useful on the first attack, at which time he never fails to give purgatives, and afterwards uniformly exhibits small and repeated doses of calomel with opium.*

This disease is certainly to be considered as a strictly febrile one, and the practice above mentioned seems at direct variance with the beautiful principles of Dr. Currie; for it is unquestionable, that the cold affusions may be successfully employed in it, when the skin is covered with perspiration, and either cool or of an unsteady heat. In every instance where I have seen this application used in the disorder in question, the conditions of the pulse and skin have been improved by it, and the general irritation greatly diminished. We know very well, that the operation of many remedial agents is much influenced by the state of the system at the time of their administration; and it is probably the extreme nervous irritation, so constantly attendant on this complaint, that enables the system to bear with advantage an application which seems to be prohibited, if we permit ourselves to be solely guided by the degrees of perspiration and heat. It is one of the most common mistake of medical inquiries, to generalize from too

* In No. 52 of the Edinburgh Medical Journal Dr. Wood of Newcastle recommends the free application of cold wet cloths to the head; and as his experience has been extensive in this disease, his recommendation is deserving of particular notice.

scanty an accumulation of facts; and thus truth and error, like light and shade, are found blended together in the most distinguished works.

Having always found coercion most prejudicial in this disease, I have invariably allowed patients as much liberty as was compatible with their situation; and having seen that contradiction highly increased their watchfulness and irritation, it has also been my aim to soothe them by address and conciliation. Guided by these principles, I have in several instances permitted them to walk abroad at their own request; and sometimes the influence of a cool atmosphere, united to that of compliance, has been useful in procuring rest. One man was allowed to go nearly a mile to look at the sea in a bleak evening, and soon after he returned he fell into a sound sleep, and was convalescent the next day; another walked about in a large apartment, when the weather was cold, with nothing but his shirt on for more than two hours, and afterwards went to bed of his own accord, and passing a quiet night, from that time recovered apace. In this disease, as in mania, the circulation is always thrown into much disorder by fasting, and therefore regular supplies of light food are necessary, which, like the other expedients recommended, will be found to allay the general turbulence of the system.(g)

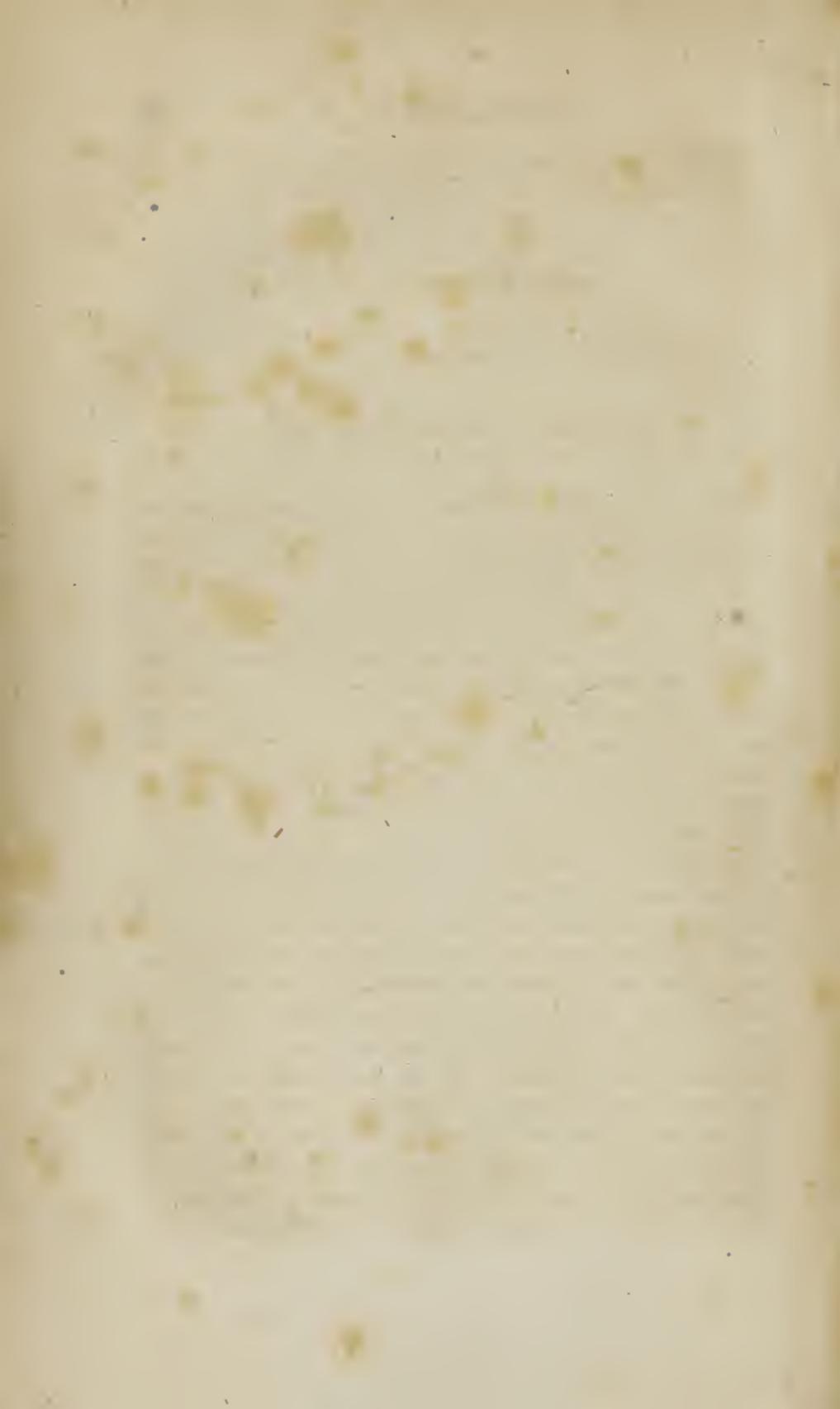
So little has been observed respecting the foregoing affection, that it has not yet obtained a place in our systems of physic; and there can be little doubt but it is still often confound-

(g) Our author it will be seen has no where noticed emetics as a remedy in this disease, nevertheless, we are persuaded that no treatment is so safe and efficacious as the emetic plan, as given by Drs. Klapp, Eberle, and Drake. Under the use of emetics patients recover much sooner and the mortality is considerably less. These gentlemen gave *Ant. Tart.* in combination with *Ipecacuan* and found their success even beyond their most sanguine expectations. It required much larger doses to effect vomiting than ordinary, but no injury resulted from the large quantities administered. Dr. Klapp states that in one instance he gave *twenty eight* grains of Antimony before his object was attained, though generally much less than this proved amply sufficient.

ed in practice with ordinary mania and phrenitis. In 1801, Dr. Samuel Burton Pearson published an account of it, in a very small tract, which had only a local circulation; and it was to it that I was first indebted for some useful information regarding its character and cure. But it is well known that the late Dr. Young, of Newcastle-upon-Tyne, treated it by opium long before Dr. Samuel Burton Pearson resided there; and though those two physicians were afterwards intimate friends, yet the latter never alluded to the former in his pamphlet. Desirous to awaken the attention of the faculty to this disorder, I published a short paper relative to it in 1812, and soon afterwards a reprint of Dr. Samuel Burton Pearson's original tract appeared, to which several additional observations were attached: some of those observations, however, seem rather the effusions of fancy, than the deliberations of judgment; and the most extraordinary success, which this author records from opium, has not been confirmed by any practitioners of my acquaintance. In the following year, seemingly without any knowledge of what had been previously written, Dr Sutton favoured the world with an excellent work on this disease, and although he also speaks highly of opium, yet he candidly acknowledges, that he lost four patients out of twenty-two,--an average loss not materially different from mine. Among the ancient writers, I know of none who has described any thing like this complaint, with the exception of Hippocrates; and it certainly does seem to me that there are four or five cases in his Epidemics, in which many of its leading signs are specified; one in particular may be mentioned, and that is the case of Chærion in the third book. If it be objected, that tremor of the hands is not enumerated among the symptoms, it may be answered, that this though a general is not an universal concomitant: three cases have occurred in my practice in which it was absent, and these render doubtful the propriety of the name which Dr. Sutton has imposed. We require, in fact, to be more fully acquainted with the nature of the disease, before we can give it a correct designation, and it

affords a subject well worthy of the most serious investigation. The remarks which I have hazarded were indeed drawn from my own experience, but they rather form materials for inquiry, than a substantial basis for the pathology and treatment of so curious an affection.

NOTE. It is worthy of remark, though it may not have been generally noticed, that this disease is confined almost entirely to the sea-board or rather to large towns on the sea-board. I have made pretty extensive inquiries among the older practitioners of the interior, and find that *delirium tremens* is of exceedingly rare occurrence in the country, some who have been in full practice for years not having met with a single case. The cause of this is not altogether obvious; certainly it cannot be, because a less quantity of ardent spirit is drank in the country, than in the city, for this, I believe, is not the fact. The only rational explanation that occurs to my mind at present is this: in cities and large towns, besides the great quantity of spirit which is drank, there are various sources of debauchery which do not exist in the country. By many in the city, the greater part of the night is often spent in rioting, or, what is worse, at houses of *ill-fame*, whereas in the country a scattered population cannot support such things. In the city then, we find *watchfulness* added to inebriation, and this, I think, may, *possibly* account for the fact.



CHAPTER V.

PUERPERAL FEVER.

GREAT discrepancy of opinion still exists among writers of celebrity, respecting the nature and treatment of the fever usually denominated puerperal. It was the conviction, that this difference had given rise to much doubt and indecision, on points of vital importance, which induced me, towards the close of the year 1813, to illustrate something like general principles to guide the practitioner at the bedside; and as attentive observation since that period has only tended to strengthen my confidence in those principles, I am induced, in this revised edition, to attempt there more complete establishment, by an ampler detail of facts, respecting this disease under its epidemic and sporadic forms.

The puerperal fever prevailed epidemically in the counties of Durham and Northumberland, in the year 1813, and among other places, at Sunderland, where I then resided. This complaint, as it was presented to me, generally occurred about twenty-four or thirty hours, and seldom later than four days, after delivery. It did not seem to depend upon difficulty of labor; for in the most of the women in whom it occurred, parturition was remarkably easy, and the placenta was separated after a proper interval, and without more than usual pain. Nor was the lochial discharge, *before* the attack, in any way apparently affected. The disease was mostly ushered in by very slight shiverings, or rigors, by oppression at the *præcordia*, by vomiting, retching, or nausea, and by considerable an-

iety of the mind. When the shiverings or rigors abated, which were often very short, the skin became universally hot and dry, and the thirst urgent. The tongue was much paler than usual, and appeared as if it had been recently rubbed, or dusted with a very fine whiteish powder ; in some few instances, however, it was tolerably clean and moist about the edges, and this more especially where vomiting had occurred. The matter thrown up consisted of the ingesta, mixed with mucus, and yellow or greenish bile. The pulse was seldom less than 120 in the minute, and mostly rather full, tense, and vibrating, or very small, sharp, or somewhat wiry, when the excitement had fully emerged.

The countenance at this period assumed an inexpressible anxiety, the lips were pale and parched, and there was a kind of livid stripe under each eye ; but the cheeks were flushed with a circumscribed redness, like that which is observed in the true hectic. The respiration soon became hurried, and the patient often sighed heavily, was restless, and turned from one part of the bed to another, or lay upon her back, and constantly moved her head from side to side, or suddenly lifted up her hands, and threw them down again with some force, upon the bed clothes. Commonly a little before, or at the very commencement of the shiverings or rigors, there was in the lower part of the belly more or less pain ; occasionally it was very acute, shooting in the direction of Pourpart's ligament, and through to the back and loins. In some instances, the pain was deep and obtuse, and more confined to one particular part ; but in every case, it was aggravated by pressure in and about the hypogastric region. However limited in its extent at first, it afterwards gradually spread over the surface of the abdomen, which became tender to the touch, tumid, and tense.

The secretion of the milk was nearly suspended soon after the attack, the breasts became flaccid, and the mother, so lately all solicitude about her child, now seldom inquired after it,*

*Dr. John Clarke has stated of this indifference of the mother about her child as a common symptom. Consult page 110, of his practical Essays, on

and indeed seemed almost insensible to those things which before most deeply interested her feelings. After the full development of the disease, the lochial discharge either disappeared or only issued in small quantity, and was very dark and uncommonly offensive. The urine was scanty and high colored, but generally passed without much pain. The bowels were constipated and flatulent, and in two instances something similar to the *globus hystericus* was observed.* Though all the patients were restless in the extreme, seldom obtaining a moment's sleep, yet they never complained of violent pain in the head, but frequently of an uncomfortable aching and lightness there, with some tenderness about the eye-balls. The eyes, when the fever was at its acme, seemed rather brighter than natural, and the pupils were slightly dilated. The whole train of symptoms already described may, in a practical view, be called the first stage of the disease—the stage in which alone a fair opportunity is offered to the practitioner of saving the life of the patient.

This state of febrile excitement, in most of the cases which lately occurred, seldom continued longer than fifty hours, and in some it terminated much sooner. When the disease was not impeded at this period it passed into what may be termed the second and last stage, which towards the close, was marked by an exceedingly great prostration of the vital and voluntary powers.

But the first approaches of this fatal stage were most clearly indicated by the rising of the pulse, which then generally ranged from between 140 and 160 in the minute, and was very soft and compressible; it feebly struck the sides of the artery, and gave

the Management of Pregnancy and Labours, and on the inflammatory and Febrile Diseases of Lying-in-women. Second edition. London. 1826.

*Willis enumerates distensions resembling hysterick passions among the symptoms of puerperal fever. Consult an abridgement of his works printed, with the allowance of the college, by T. Bassett, T. Dring, C. Harper, and W. Crook, in 1692. See page 632 and 634, in particular.

the idea that the heart was laboring hard to keep up the force of the circulation. About twelve hours before death, the pulse became thready, fluttering, and irregular, and so rapid as not to be correctly numbered. For some time after the accession of the second stage the skin remained at an increased temperature and dry, but then the patients almost constantly complained of chilliness. The cheeks were alternately flushed and deadly pale, the eyes lost their lustre, the pupils were much dilated, and a kind of dewy perspiration stood upon the face and forehead. The pain gradually and entirely receded from the abdomen, which became much more distended, and it usually happened that dark, slimy, and very fetid stools were discharged from that time onward. The thirst was unceasing; and when any liquid was offered, the patients hastily seized the vessel, and glutted down its contents, as if they had previously been expiring for want of drink. The tongue for the most part was brown, or rather black and parched, and had aphthæ upon it, which even appeared about the edges of it at an early period. In one very bad case, however, the tongue continued clean and moist to the last; but there was an almost perpetual vomiting throughout the second stage, though only a slight nausea occurred in the beginning, and very little vomiting in the rest of the first stage. Indeed vomiting was always more urgent in the last than in the first stage of the disease, and the matter then thrown up very much resembled coffee-grounds, and was offensive to the smell. The teeth and gums were crusted with dark, slimy sordes, and the breath was disagreeable, as if it had been tainted with mercury. Throughout the complaint there was a short teasing cough, but this was more especially the case in the last stage, when the respiration grew very short, feeble, and frequent, and the alæ nasi were thrown into perpetual motion.

Soon after the advancement of the second stage, the patients began to talk incoherently, they frequently made attempts to get out of bed, and occasionally, after having lain still a short time, suddenly started, and spread out their hands, which were

then very tremulous, as if to ward something off that was approaching them. About this time, two patients became gradually collected, complained of no pain whatever, looked and spoke cheerfully, and flattered themselves that they should soon be well: this illusion continued till within an hour or two of their death, rendering them completely insensible to their real situation; and even to friends, though warned by the medical attendant, their death was at last unexpectedly sudden. But in three other unfavourable cases, the light wanderings of the mind which took place at an early period of the second stage, were not succeeded by a state of serenity, but by a low muttering delirium, speedily followed by a stupor, in which the patients lay with their eyes half closed, and could not be roused from it, but by loud speaking, upon which they started as from a disturbed sleep, uttered some vague and hasty expressions, and then sank into the same condition as before. A few hours before death, in these cases, some dark scattered petechiae appeared, and the skin was in that peculiar state which accompanies the last stages of tetanus, and the brain fever of intoxication, the whole surface felt soft, relaxed, and clammy, and the hand glided almost as smoothly over it as if wet by soap and water. In the above three instances, also slight stertorous breathing occurred near the termination of this disease, and, last of all, general though not violent convulsions. This complaint, when not arrested, generally ran its course in a few days. Soon after death, the bodies became rather livid and very offensive to the smell, and the abdomen immensely distended.

At Sunderland the first case of the puerperal fever happened in January, 1813, but apparently under a sporadic form; and the few cases which appeared throughout the winter assumed the same character, the majority being so mild as to yield to brisk purging and a spare regimen. In the spring of the year, however, the disease became much more formidable in its character, and about this period, five patients fell victims to its violence in rapid succession. In all, forty-three cases

occurred from the 1st of January to the 1st of October, when the disease ceased ; and of this number, forty were witnessed by Mr. Gregson and his assistant Mr. Gregory, the remainder having been separately seen by three accoucheurs. It may seem, and actually is remarkable, that so large a proportion of the cases should have occurred in the practice of two gentlemen, but in this respect they were by no means singular. At Chester-le-street, about nine miles from Sunderland, several cases occurred to Mr. Wolfe, while Mr. Nelson, junior, of the same place, only met with a solitary instance now and then. Dr. Ramsay told me, that one accoucheur, lost seven patients in a town not far distant from Newcastle-upon-Tyne ; and Mr. Fife stated, that the disease was confined to the patients of that practitioner, and in the preceding year, in like manner, to those of one midwife in Newcastle itself. In the beginning of May, 1813, it appeared in the neighbourhood of Alnwick, and prevailed for some time afterwards ; but in that town it was limited to the practice of two gentlemen, Mr. Wilson and Mr. Stephenson, though one midwife, who had a considerable increase of business, had not a case of the disease. Another midwife, however, who had been about two days in the house of a lady dying of the puerperal fever, went into a district about eight miles distant from Alnwick, and there delivered several women, nearly the whole of whom were attacked with the puerperal fever. My friend Dr. Ayre of Hull, too, informed me that the disease had been confined to the practice of two accoucheurs at different places in Yorkshire ; and I could accumulate evidence to show, that this was further the case in other quarters of the county of Durham, and even much more to the northward. In this particular, therefore, the epidemic strikingly coincided with that noticed by Dr. Gordon many years ago in Aberdeenshire : for he has distinctly mentioned, that the disease occurred to certain individuals, while it was entirely unknown in the practice of others living in the same neighbourhood ; and he naturally enough attempts to account for a circumstance so singular by supposing, that the practitioners conveyed the contagion from patient to patient.

From all the circumstances which I have been able to collect, it appears, that the puerperal fever, above described, existed in fact for more than two years in different parts of the counties of Durham and Northumberland. In the year 1811, it arose in the neighborhood of Stockton-upon-Tees, afterwards in the town of Newcastle-upon-Tyne, in Sunderland, near Chester-le-street, then in the vicinity of Newcastle-upon-Tyne, and, lastly, in and about Alnwick. In its course it assumed two principal varieties, one accompanied with the symptoms of simple peritonitis, and the other, though marked by a less evidently declared inflammation of the abdomen, was connected with a more overpowering and oppressive fever from the commencement. Those who have cautiously noticed the various characters which abdominal inflammations assume, will be easily able to comprehend how the type of the fever may be modified by the seat and extent of the inflammation; and what seems actual debility in the beginning of such affections, is only a greater degree of general oppression from a more intense inflammation, how much soever that inflammation may be marked by the change which has taken place in the nervous system. In both the forementioned varieties, the puerperal fever had the same general characters in the last stage; but the first variety was less rapid than the second, though both went on to a fatal termination, unless active remedies were promptly applied at an early period. During its prevalence, a great many women died of this disease; and this was so much the case in some parts of Northumberland, that I was credibly informed, every patient perished, who was not bled in the beginning. In a few cases, and only in a few, the puerperal fever had a more protracted course, and a more obscure character, answering exactly to the description of some which Dr. Ramsbotham of London had previously met with, and which he mentioned to me in an excellent letter, respecting the nature and treatment of this complaint. In these cases the pulse at the commencement ranged from about 100 to 120 in the minute; there was at first little affection of the tongue, little affec-

tion of the belly, and that only complained of when the hand was pressed forcibly upon the abdomen for some time. The mind was perfectly collected, and the countenance for some days not altered; but the patients were liable to feel some uneasiness in the head, and especially about the orbits of the eyes. The symptoms insidiously advanced, the pulse acquired a greater velocity, the pain of the belly increased, and after a few days' continuance of abdominal tension, the countenance began to change, and the mind to wander. Dr. Ramsbotham justly remarks, that this form of the disease is often considerably advanced before it can be satisfactorily detected; and he considers it the more dangerous on this account, and because prompt and powerful means, from the apparent mildness of the symptoms, do not appear to be so early demanded.

Puerperal fever is mostly divided into epidemic and sporadic, and in both the abdominal affection has been considered the essential part. It shall afterwards be shown, that this arrangement is not sufficiently comprehensive, though in these pages, increased heat and abdominal inflammation are regarded as pathognomonic signs of what authors mean by the puerperal fever; and from what has been said, it will be evident, that in the most rapid cases this inflammation is acute, and sub-acute in the more protracted. Yet it has appeared to me, that the causes of what is called *the puerperal fever* are more varied than most authors allow; and the effect resulting from these causes is the same, on account of the previous and peculiar state of the abdomen, whether the disease be sporadic or epidemic.

DIAGNOSIS.

If in a therapeutic view, as shall be afterwards shown, the puerperal epidemic should be thought *essentially* different from the ordinary peritonitis of lying-in women, the distinction will in most assuredly, be made at the hazard of life. The admirers of nosological minuteness, however, may contend that there are circumstances in the rise, progress, and sequel of the epidemic, which sufficiently mark it from the more simple peritonitis; but I can assert, with some degree of confidence, that if these circumstances be allowed to influence the practice very materially, they will be found exceedingly fallacious at the bed side, however plausible they may seem in books. These, then being the firm convictions of my mind, puerperal fever, shall only be particularly distinguished from milk-fever, after-pains, inflammation of the uterus, and that ephemera called the weed, to which child-bed women are very liable,

The milk-fever is known, principally, by throbbing, irritation, and enlargement of the breasts, and by the pain being confined to the mammae, during the continuance of the febrile symptoms; whereas in the puerperal fever, the pain begins and continues in the abdomen, while the breasts, for most part, are neither distended nor uneasy, but commonly more flaccid than natural. Besides, there is considerably more lassitude and weariness, a more urgent nausea or sickness, and a quicker pulse in the commencement of the puerperal than of the milk-fever.

In after-pains, at certain times, pressure can be borne without uneasiness, but in the puerperal fever the belly is sore to the touch, and pressure always aggravates the pain. In the first, there is no accession of fever, nor an accelerated pulse, the pains are grinding, like those of labor, and, like them, they

are succeeded by intervals of complete ease ; on the contrary, in the last, there is an accession of fever marked by an uncommon rapidity of the pulse, and the pain is without intermission.

Simple hysteritis may be known by a burning, throbbing pain, fulness, and oppressive weight in the region of the uterus, by frequent calls to make water, which is passed with great pain and difficulty, by the uterus itself feeling hard, and enlarged, and being exquisitely sensible when pressed upon by violent pains darting through to the back, and down to the groin and thighs, by an increase of pain from raising the trunk erect, and by the soreness and fulness being more confined to the lower part of the abdomen throughout the attack, than in the puerperal fever. When the above symptoms occur with increased heat, thirst, quick pulse, sickness of the stomach, and suppression of the lochia, there can be no question as to the seat of the disorder. Nevertheless, however plain these distinctions may appear upon paper, or in lectures, it is certain from dissections, that hysteritis often, very often, constitutes a part of the abdominal inflammation attendant upon puerperal fever. Nor will this seem at all surprising, when we reflect that the uterus, after the separation of the placenta, is in a fact a kind of recently wounded member, to which inflammation may be readily imparted, especially if the lochial discharge, as frequently happens in the puerperal fever, be diminished or suppressed. When simple hysteritis does take place, Denman judiciously observes, that it is much less dangerous, particularly after parturition, than an equal extent of inflammation in any other of the abdominal viscera, because the uterus, as a kind of outlet, admits of a return of the lochial discharge, which may lessen, and even remove the disease. The last mentioned author too remarks, that not one instance has been observed of any woman, who had an abscess in the breast, being attacked with the puerperal fever ; nor any who, in consequence of their labour, had such an affection of the bladder, as to occasion a suppression of urine. My own experience tends to confirm the first, and to refute the last of these remarks ; for I

have never known a case of this disease to occur where the breast suppurated, but I met with one which took place under a suppression of urine, though the circumstance is probably rare.

The ephemera, called the weed is ushered in by strong rigors, which, commonly in less than an hour, are followed by heat, thirst, and general excitement, the whole train of symptoms being terminated in twenty-four or thirty hours by profuse perspiration. The absence of abdominal irritation is generally sufficient to prevent the possibility of mistaking this disease for the puerperal fever.

Severe gripping pains, occurring in the child-bed state, with fever and tenesmus, have been considered by some as the characteristics of enteritis, but I cannot help suspecting that these nice discriminations are more specious than useful.

Having thus endeavoured to distinguish puerperal fever from milk-fever, after-pains, hysteritis, and the ephemera, I shall now be more at liberty to pursue the consideration of the disease itself, and may perhaps, hope that the inexperienced student will be prevented from confounding it with the forementioned complaints.

The puerperal fever, especially under an epidemic character, sometimes creeps on in a very insidious manner, the abdominal inflammation being masked by an oppressive languor, and a diminished sensibility of the nervous system; yet in such cases, the disease may generally be detected by the great frequency of the pulse, by the quickened respiration, by flatulence of the stomach, and by the patients shrinking when pressure is applied over the abdomen, through they previously made little or no complaint of pain in that part. In those cases of the puerperal fever which commence with uneasiness in the head, the patients sometimes complain of little or no pain in the belly for two or three days after the first attack; but the breathing is always quicker, the pulse more frequent, the abdomen rounder and fuller, and the stomach more flatulent than natural. **Forcible pressure on the belly is one of the best**

tests of the abdominal inflammation ; and when it is made, the practitioner should always watch the countenance of the patient, for that will undergo an immediate change if the pressure give uneasiness ; an uneasiness which some patients strive to conceal, when they are aware that evaenient measures would follow its acknowledged existence. But even if pressure on the belly should induce no change of the countenance, still if the pulse should be rapid, and the respiration anxious, it is safest to treat the case as if the abdominal inflammation openly existed ; for I have known some instances where this treatment was omitted, and dissection after death discovered traces of inflammation both in the brain and abdomen. Sometimes in the puerperal fever, as in typhus, there is an universal soreness of the flesh, a condition of the surface which may be extremely embarrassing ; for if the practitioner should at first press his hand over the abdomen, the patient would shrink much—but if he tried pressure in other parts, she would still do the same, so as to leave doubts as to the presence of visceral inflammation. In such cases, however, the brain and spinal cord are commonly more or less inflamed, of which the soreness of the surface is symptomatic ; but if the patient lie upon her back with the feet drawn upwards, and if stretching them suddenly downwards give pain, and if the breathing be hurried, and the stomach flatulent and irritable, abdominal inflammation may be presumed, also, to exist. Thus it will appear, that two opposite states of the nervous system may occur in the puerperal fever, one in which the sensibility is diminished, and another in which it is increased ; and without due care on the part of the medical examiner, both may contribute to mislead him as to the actual state of the abdominal viscera.

My friend, Mr. Wolse of Chester-le-Street, who has paid great attention to the puerperal fever, considers the appearance of the alvine evacuations as one of the best diagnostics. Whenever, therefore, febrile symptoms take place, with pain and soreness of the abdomen, after parturition, he immediately gives the patient a brisk purge ; and if, when the contents

of the lower part of the bowels have been dislodged, the stools should be of a dark colour, somewhat resembling coffee-grounds, very copious, of the consistence of thick gruel, and of a fetid smell, he is then confirmed in his opinion, that he has to encounter an affection requiring more than ordinary activity of treatment, and subsequent events have always fulfilled his predictions.

As an additional proof of the justness of the above remarks, I have, on inspecting the evacuations, generally found them dark, slimy, fetid, and unexpectedly large. Indeed, excepting that they are commonly mixed with hard pieces of scybala, they have neither the ordinary smell, consistence, nor colour of natural fecal stools; but seem to be composed, for the most part, of some excrementitious matter, somewhat like thin, dirty yellow paint, thrown out in considerable quantity in the course of the disease. It seems to me highly probable, that, in many cases of the puerperal fever, the villous coat of the bowels as well as the liver are affected: in some instances, that affection may consist in a mere change of secretion, but in others it appears to amount to inflammation; and in one example this had clearly occurred, for after death the lining of the intestines and liver exhibited the marks of having been inflamed. The mucus membranes are very liable to inflammation in many fevers, and they have a sort of continuous sympathy, as Bichat observes, by which they reciprocally affect each other: but as inflammation of their surfaces is often attended with but little uneasiness, it is too frequently overlooked; and in this way the increased secretion from the inflamed lining of the bowels is frequently mistaken for simple diarrhoea in acute fevers.

In many instances, it is remarkable how very indifferent patients are to surrounding objects, and this indifference is of such a nature, as not only to extend to objects in general, but to render them inattentive even to the suckling of their infants. This last mentioned circumstance has been imputed by some to the suppression of the lacteal secretions, but this is certainly

not the cause, since I have seen it in the very commencement of some cases, in which the secretion of the milk was but little affected. Whatever may be the cause of this curious phenomenon, it indicates an extraordinary power of disease, which can in a few hours paralyse the maternal affections. In many cases, if the apartment be ever so well cleaned and ventilated, and the linen daily changed, there is still an offensive smell about the bed of the patient; and in the first stage, particularly of the more severe cases, a peculiarly striking expression of the face, which I have not seen in any other complaint. The countenance manifests alarm and solicitude as if the person affected was the subject of two different emotions at the same time; at least I am not able to convey a more definite conception of the physiognomy soon after the attack of the disease.

In touching upon the diagnosis, it may not be irrelevant to remark, that in the epidemic which has been delineated, the state of the lochia was various. In by far the greater number of cases which took place at Sunderland, they were gradually diminished or suppressed *after* the full developement of the fever; but in those cases which occurred to Mr. Wilson of Alnwick, the lochia were at no period either diminished or suppressed, while in the examples which Mr. Stephenson, of the same place, encountered, they were mostly diminished or suppressed. Again, in the patients which Mr. Wolfe of Chester-le-Street attended, this discharge was sometimes obstructed, and at other times not deficient in quantity; and were it necessary I could quote some of the best authors to prove, that the lochia are affected in some cases, but not in others. Yet so far as my inquiries have gone, and they have been extensive among observant practitioners, I should be authorised to state, that the lochia are most frequently diminished or suppressed in the progress of the puerperal fever; but whenever this happens, their diminution or suppression can be clearly traced as an effect, and therefore ought never to be confounded as a cause of the disease. For my own part, and I have been consulted in a great variety of puerperal cases of one kind or oth-

er, I have never been able distinctly to trace the origin of any febrile disease, to the diminution or suppression of the lochia, which have always appeared to me as the mere consequences, not as the occasions of fever, though some insist on a contrary view of the subject.

From separate copies of his lectures, it appears, that Dr. Hamilton, junior, the distinguished professor of midwifery in Edinburgh, maintains that the lochial discharge is not suppressed in cases of the true puerperal fever; and partly upon this assumption, he attempts to distinguish it from other affections of child-bed, which resemble it most. But I have shown, in the puerperal fever which prevailed epidemically in the North of England, that the lochia were sometimes suppressed, and sometimes not at all deficient; and the same was the case in the diseases which Dr. Gordon and Mr. Hey have described, not to mention other instances which might be adduced to prove the variable state of this discharge in the puerperal fever. The distinction, therefore, which Dr. Hamilton has endeavoured to establish must fall to the ground, since, so far from being supported, it is directly opposed by a host of facts. From these remarks it will not be presumed, that I mean to arraign this deservedly eminent individual for the open expression of his opinion; but being confident, that this opinion is alike fallacious and dangerous, I feel it my duty to protest against it, as the high authority whence it proceeds may have powerful influence over those ignorant of the subject. Even the late ingenious Dr. John Clarke, anxious as he was to draw a line of demarcation between puerperal peritonitis, and what he called the low child-bed fever, completely failed in the attempt; for no unprejudiced man can read his descriptions without inferring, that the latter was an aggravated degree of the former, which the appearances after death, detailed by this author, render almost indisputable. Yet this classification, however defective, was an approach towards the truth, and has powerfully assisted the pathological researches of those who rather regard facts than speculative opinions.

But, to prosecute the diagnosis—abdominal pain, or soreness, quick anxious breathing, unusual frequency of the pulse, increased temperature, anorexia, prostration of the vital and voluntary powers, with an unnatural condition of the excrements, are among the chief pathognomonic signs of the puerperal fever; but in some cases of an acute kind, especially where the head is affected, the abdominal disorder may be indistinctly declared for some time, and therefore all the collateral circumstances of the case should be taken into the account, in forming the diagnosis. As for that modification of the puerperal fever, which is attended with an obscure, or rather a subacute species of abdominal inflammation, it may be best recognized by quickness of the pulse, anxiety of the respiration, fulness and roundness of the abdomen, flatulence of the stomach, and uneasiness of the belly on forcible pressure, with an evident change induced in the countenance at the same time. Besides, the patient generally lies, as if by instinct, upon her back, with her knees elevated; a position which both relaxes the abdominal muscles, and keeps the bed-clothes from pressing upon the surface of the belly; and even in such instances, as before intimated, if the patient be directed to stretch her legs suddenly, and fully down, some uneasiness will be occasioned in the belly, and thereby some alteration in the expression of the face, from the tension which this change of position produces in the abdominal muscles.

PROGNOSIS.

From the days of Hippocrates* to the present time, the puerperal fever has been esteemed imminently dangerous; indeed some writers have not hesitated to place it next to the plague in the catalogue of diseases. Though I perfectly agree with the

* Si mulieri pregnanti fiat in ute ro erysipelas, lethale est.

HIPPOCRATES.

common opinion, as to its danger, and am convinced that part of its fatality may be fairly ascribed to its natural tendency, yet I am fully persuaded that it may generally be arrested in the beginning, and that much of its fatality has been occasioned by our great caution, timidity, and indecision in treating it. In truth, it is an extraordinary malady, and requires extraordinary remedies, rapid as well as powerful in their effect; for, in the most severe examples, if the first twenty hours from its marked appearance be lost in doubt and hesitation, no human efforts, generally speaking, can afterwards atone for the error. On the contrary, if these golden moments be seized without delay, and an active treatment steadily pursued, it is my firm belief, that there are few febrile disorders of the more serious kind, which afford the physician a fairer chance for the successful exercise of his functions.

Notwithstanding, it would only be proper that the physician should always give a guarded prognosis in this disease, and more especially when it is epidemical; since it has happened in this, as in every other epidemical fever, that cases have proved fatal, in defiance of the most prompt and judicious measures.

Dr. Foster has observed, that there is often a treacherous remission about twenty four hours after the attack, and this also, is often the case about the end of the third day. Whenever, indeed, any remission of pain takes place, the professional attendant must neither be betrayed into a sanguine declaration of a speedy recovery, nor into a supineness of practice; because under such an apparent abatement, the disease sometimes secretly and rapidly advances, and even when that is not the case, it sometimes returns with greater violence than before.

It has been stated, by some authors, that the pain in general suddenly leaves the belly before puerperal fever ends unfavourably. But, from an almost hourly attendance upon many cases, I am inclined to believe that their assertions on this point have been too hastily made, and that the pain, in the majority of examples, gradually abates, and, in some, even continues distressing to the last. Occasionally, however, there can be

no doubt but that there is a surprisingly sudden transition from the greatest suffering to the most perfect ease; and when this happens with a cold, clammy skin, and a rapid, small, fluttering pulse, it must be looked upon as a fatal sign—as the last illumination of life.

It seems agreed by all accurate observers, that the earlier the attack the greater is the danger, and that those whose powers of feeling are much diminished from the beginning, and who consequently complain but little, generally sink under the pressure of the disease. On the other hand, an excess of sensibility is always to be dreaded, for I have had opportunities of remarking, that those patients seldom recover who are tremblingly alive to every surrounding impression. It is well known that unmarried women do not recover so well as married ones, the mental irritation necessarily attendant upon their situation considerably increasing the febrile excitement, rendering them extremely restless, and thus augmenting the danger.

The slightest approach to mental confusion or delirium is an inauspicious sign, at any period of the complaint. An agitated countenance, with a hurried, unconnected manner of speaking, constant sighing attended with a tossing of the arms, pain and oppression of the chest, visual deceptions, imaginary strange sounds and voices, muttering and stupor, are among the most unfavourable symptoms. Dr. Foster, on examining the bodies of two women, who apparently died of the puerperal fever, discovered that the omentum in both was lacerated near the middle, almost entirely across from side to side. It is, however, readily acknowledged, that such lesions are exceedingly uncommon, yet when they do happen, as they place the patient beyond the power of art, and as nothing but actual dissection can prove that they do not exist in any case, we should, in every instance, be the more cautious in passing a prognosis.

Irreparable derangements in the structure and functions of the abdominal viscera are often made in the course of twenty-four hours: the time, therefore, which the disease has continued, ought materially to influence the opinion to be delivered.

At any time when the disease has existed more than twenty hours, rigors are highly alarming. But, in some cases, there is a morbid sensibility of the surface to external impressions, which must not be confounded with the chills denoting the approaches of gangrene or suppuration, as it may always be distinguished from them, by the pulse remaining unaltered in force and frequency. Almost immediately after copious venesection patients sometimes become cold, faint, and shivery. These symptoms, however, need not alarm the attendant, provided the operation has been opportunely performed, for he will then almost invariably find them gradually give way to a general warmth and moisture of the surface, succeeded by a reduction of the pulse; yet if, on the other hand, the lancet has been indiscreetly used, when the last stage of collapse was about to commence, or had actually commenced, nothing can be more dangerous than the continuance of the coldness, faintness, and shivering, especially if attended by frequent sighing, and a very feeble and irregular pulse.

An open state of the belly immediately before delivery, generally tends to mitigate the severity of an early attack, and a diarrhoea coming on in the first stage sometimes carries off the disease; whereas, on the contrary, costiveness is always an unfavourable circumstance, increasing in no inconsiderable degree, the difficulty of the cure. An experienced friend of mine lately attended a patient whose bowels had not been loosened for more than a week before her labour. The case was unusually violent, and resisted every remedy.

The state of the respiration, pulse, stomach, and skin must, in a great measure, regulate the prognosis. When the respirations are short, feeble, and amount to about fifty in the minute; when the pulse becomes extremely weak and compressible, and rises above one hundred and sixty: when there are frequent vomitings of a coffee-coloured fluid, an increase of abdominal distension, repeated shiverings, and a universally cold damp skin, the case may be pronounced desperate. On the contrary, when the respiration grows easy, deep, and slow;

when the pulse comes down, and ceases to be variable ; when the stomach retains the food and medicine, the stools continue copious, the tension and pain of the belly abate ; when the skin breaks out into a warm sweat, the tongue becomes clean and moist, and especially when fresh discharges of the lochia, and secretion of the milk take place, the symptoms fully authorize a favourable opinion.

Dr. Denman has stated, that a subsidence of the abdomen, after copious stools, and with a moist skin, is a fortunate alteration for the patient, but that this circumstance without evacuation, and a dry skin, threaten the utmost danger.* But I have seen some cases fatal where a diarrhœa came on in the last stage with a cold moist skin, and a subsidence of the abdominal tension. To this prognosis, therefore, of the judicious Denman, exceptions do exist. As for a diarrhœa it is often a most formidable symptom, when it occurs in the last stage ; as it is then frequently connected with structural derangement of some of the abdominal viscera, and also with an universal collapse, which it rapidly increases. And indeed in the first stage a diarrhœa is in general no further favorable, than that it tends to lessen some intestinal or hepatic excitement, of which it is the product ; and on this account it ought never to be restrained at that period, as it is a most certain sign, that additional evacuations are requisite.

Hippocrates has observed, that in the most dangerous attacks of fever, patients generally lie upon their backs. This is certainly the position which is very often assumed throughout the puerperal fever ; and it is commonly favourable, when patients can turn themselves and lie upon the side, though I have seen some few instances where this was done a few hours before death. In health there is a certain relation between the respiration and pulse, the number of the former being on an average about twenty, and that of the latter somewhere near seventy in the minute. Any striking deviation from this rela-

See vol. ii. p. 469, of the edition before quoted.

tion, which is nearly as one of the former to three of the latter, is generally an unfavourable symptom in acute diseases; and we shall accordingly find, that this relation is sometimes completely destroyed in the worst cases of the puerperal fever.— But in giving a prognosis we ought never to rely entirely on one symptom, but take a comprehensive view of the whole; so that in separating the favorable from the unfavorable signs we may be able to perceive to which side the weight of probabilities inclines.

If the pulse can be kept under 120 in the minute for the first week, the patients will generally do well, provided the respiration be not much disturbed. But if the pulse should continue quick after the abdominal symptoms have disappeared, and if there should be evening exacerbations, deep seated suppurations may be dreaded. In general those patients recover the most rapidly, and are the least liable to secondary diseases, in which depletion has been early and copiously used; but where half measures have been employed, and where the patients have had lingering recoveries from this fever, other diseases are very apt to supervene. Of these diseases peripneumony seems to be one of the most common, from the almost general assent of authors; but under such circumstances I have seen consumption to arise, indurations of the mesentric or other glands, or chronic inflammation in some internal or external part of the body. Before delivering his prognosis, therefore, the practitioner should endeavour to anticipate what may happen in the future, from a review of the present or past symptoms; and in this, as in every other opinion, he should declare what he feels to be morally right, and be above the mummery and mystery of selfish cunning.

PREVENTION.

When puerperal fever is epidemical, the accoucheur should make it a point of duty to have the apartments of the women whom he is engaged to-attend properly cleaned and ventilated before confinement; to prevent nurses and other persons who have been with those affected, from waiting upon or going near any patient about to be delivered; to pay the most scrupulous regard to the cleanliness of his own person, using daily ablutions of the whole body, and frequent changes of linen and dress.* Though it be denied by some authors, that the puerperal fever is always contagious, yet most seem to agree, that it is so under some of its modifications; and therefore, it is obviously better to err on the side of precaution, than to pursue an opposite line of conduct.

As anxiety of mind materially contributes to produce this disease, it should always, if possible, be timely allayed. But when the puerperal fever is known to be prevalent, the greatest attention and address will be requisite to remove the solicitude of pregnant women; for such is the constitution of human nature in general, that they are irresistably drawn to the consideration of the existing calamity, though conscious that not to think of it would be best in their condition. If, therefore, an alarm be abroad, the practitioner must, above all things, aim to inspire the apprehensive patient with a complete confidence in his powers of prevention; nor must he ever use doubtful language upon the subject, since, if he once betray the least fear, as to her security, from that moment no faith will be placed in his professions.

*I had evident proofs that every person, who had been with a patient in the puerperal fever, became charged with an atmosphere of infection, which was communicated to every pregnant woman who happened to come within its sphere. Gordon, p. 63, 64.

Sedentary employments, too stimulating, or too spare a diet, night watchings, fashionable dissipations, and irregular habits of every kind, seem to predispose pregnant women to puerperal fever. A nutritious diet, early rising, and regular exercise in the open air, are among the most efficacious means of preserving health, and inducing an easy and safe labour. It did not escape the penetrating sagacity of Lycurgus, the law-giver of ancient Sparta, that simplicity of diet, and an habitual action of the body during pregnancy, greatly favored the security of the mother and the strength of the offspring. And I believe, that if these simple truths were more generally known and followed, there would be much less fatality in parturition.

As the retention of fecal matter in the intestines often greatly assists in the production of this disease, so the timely exhibition of mild purgative medicines may be reckoned one of the best preventives. It is proverbial among child-bearing women, that castor oil is an excellent remedy for lessening the dangers incident to delivery ; and I have little doubt, that when the bowels have been kept open by it or any other suitable purgative, the occurrence of fever has frequently been prevented. Many pregnant women suppose their bowels to be in a proper state when they have only one scanty evacuation in the day ; so that, in the course of pregnancy, an extraordinary accumulation of feces takes place, as I have repeatedly witnessed. The professional person may be much deceived, who trusts to the reports of his patients in this respect. Nothing less than frequent inspections of the alvine evacuations can be at all satisfactory, since their quantity and appearance alone can regulate the extent to which purgatives should be used as preventives. As a general rule, to which, however, there may be exceptions, never less than one very copious, natural stool should be procured in the day, throughout the whole term of gestation. In a most sensible letter to me on the puerperal fever, Mr. Fife, of Newcastle-upon-Tyne, justly observes, that pregnant women are very apt to deceive themselves respecting the state of the bowels, some neglecting the use of medicine alto-

gether, while others, from a fear of doing harm, content themselves by taking now and then a little magnesia, which they imagine has done enough when it produces a partial loose evacuation, and thus very often they lay the foundation of much future distress and danger. When a puerperal fever raged epidemically at Aberdeen, Dr. Gordon found, that a purging bolus of calomel and jalap given in a morning, the day after delivery, either prevented the disease entirely, or seemed to render the attack quite manageable.* Yet upon the whole, I am decidedly inclined to prefer the milder purgatives as preventives, but especially castor oil, which completely unloads the bowels, without occasioning any constitutional irritation; and this cannot always be said of the drastic purgatives, which, when there is no fever present, often excite much general irritation, and even sometimes a degree of tenderness over the abdomen, and thus now and then may probably prepare the way for what they were intended to prevent. Under the influence of a purgative, women, after delivery, are easily chilled by an exposure to cold; and as chillness may induce an attack, a bed-pan should generally be used, or, at all events, exposure to cold avoided. It is, I know from personal inquiries, the custom of some nurses to get the patient out of bed after delivery as soon almost as the accoucheur leaves the house; and without his knowledge to change her linen, considering neither the risk which may be induced from cold, nor that from haemorrhage by such an imprudent exposure. Before leaving his patient, therefore, the accoucheur should give the most particular directions, equally stating what ought, and what not to be done, till his next visit.(y)

During labour, care should be taken not to irritate the os uteri by frequent and unnecessary examinations; neither

* See Gordon's Treatise, p. 100.

(y) The practice, or custom, of which our author here complains, is very common in this part of the country, and on this account, every accoucheur should rigidly insist upon the course recommended by Dr. Armstrong. Under the head "Of Putting to Bed," Dr. Dewees, in his "System of Midwifery," makes some very judicious remarks on this subject; which see.

ought the placenta to be extracted too hastily, for much mischief may result from such a procedure; haemorrhages may immediately follow, the uterus itself may receive some serious injury, or it may contract upon a small portion of the placenta left attached to its interior, any of which things may act as an exciting cause in a person predisposed to this fever. My respected friend, Mr. Ferguson, of Bishopwearmouth, who has been in a most extensive practice of midwifery, for about forty years, has hardly ever seen puerperal fever succeed uterine effusions merely arising from a defect of contractility in the uterus, but has often seen it follow those haemorrhages which arose from an injury sustained by that organ. This is an important fact, and perhaps may, in part, tend to explain some of the existing discrepancies of authors, some of whom assert that floodings occasion, and others that they prevent, the disease; at all events it suggests the propriety of using prophylactic measures, where large discharges have taken place after difficult labours, or in consequence of violence suffered by the uterus. It is not, I hope, presuming beyond my province, when I admonish accoucheurs in general not to let the pressure of business induce them to extract the placenta too soon; nothing but an eruption of blood, threatening the very life of the patient, can justify its hasty and forcible separation. On the other hand, the after-birth, for obvious reasons, must not be allowed to remain too long. Dr. Hamilton, the judicious professor of midwifery in the University of Edinburgh, declares, in his lectures, that it cannot be left, with perfect safety, longer than an hour in the uterus, after the expulsion of the child.— From extensive inquiries which I have made amongst practitioners in midwifery, it would certainly seem, that haemorrhage during delivery does in certain subjects predispose them to attacks of the puerperal fever; and it was an observation of the late Dr. Clark, of Newcastle-upon-Tyne, who had seen numerous examples of this disease, that uterine haemorrhage had preceded the majority of the attacks. What is called arterial re-action, an increase in the action of the heart, with an in-

crease of animal heat, is very liable to follow large losses of blood; and when we consider, that those losses must have weakened the system, it will not appear surprising that the subsequent re-action should lead to abdominal inflammation in peculiar habits. Probably different men may have been led to different conclusions, respecting the influence of uterine haemorrhage, from the various modes of treatment afterwards adopted; those perhaps who pursued an antiphlogistic plan, having rarely seen this disease to supervene; and those who pursued a different method, have often marked its occurrence. Considerable mischief is often produced by attempts to raise the prostrate powers at once by the exhibition of diffusible stimulants: but where life is not in jeopardy from the collapse, it is always best to endeavour to raise the system gradually into vigour by mild means; for under this plan we shall generally avoid any secondary affections of excitement, whereas, under the other, those affections will not be uncommon.

If cold has been applied to any great extent in uterine floodings, and a considerable re-action of the heart and arteries, with some degree of fever, is likely to succeed their suppression, the practitioner must be upon his guard, and not permit his patient to take strong drinks and food by way of replenishing the system; but he must insist upon a cooling regimen, and administer aperients till the inflammatory threatenings disappear. After severe, and especially after instrumental labours, two or three visits should be daily paid to the patients for some time by the professional attendants, that they may have proper opportunities of enforcing their directions, and of perceiving the very first approaches of any fever that may supervene; but indeed, a spare diet, cleanliness, ventilation, quietness, and an occasional purge, will generally obviate danger. Dr. Denman notices that women are certainly not so often attacked with this fever after difficult labours, because of the particular care with which they are then managed; whereas, after easy ones, they are more unguarded.* That the body will bear a great

*See his work, vol. ii. p. 462.

deal without serious consequences is certain, when precautionary measures are early pursued. I was once consulted where from inflammation, the os uteri during pregnancy had completely and firmly united by a sort of ligamentous substance; so that the accoucheur had to make an incision there by the knife before the child could be removed from the uterus; and yet, in this remarkable case, the woman had an exceedingly good recovery, a strictly antiphlogistic plan having been enforced for some time after the operation.

Celsus,* and other writers since his day, have recommended patients to be treated, for a certain time after delivery, as if they actually laboured under an inflammatory affection, or had received some wound in an important part of the body.— In reality, no advice can be more judicious or necessary, however it may be disregarded in ordinary practice. The species of inflammatory diathesis which exists throughout the whole period of pregnancy,† together with the throes of parturition, bring the system into a state verging upon febrile excitement, which no doubt would be attended with considerable danger, were it not for the secretion of the milk, and the flowing of the lochia. If, therefore, we would lessen the risk of fever in general, and of the puerperal fever in particular, the child should not be kept from the breast longer than twelve hours from the time of its birth: we should enjoin the strictest antiphlogistic regimen, and administer mild purgatives now and then, especially during the first four or five days, as that appears to be the term in which there is the greatest tendency to febrile disor-

* Reliqua curatio talis esse debet, qualis in inflammationibus, et in his vulneribus, quæ in nervosis locis sunt, adhibetur. A. Corn. Celsus. Glasguæ: Excudebat Gulielmus Bell, MDCLXVI. vide p. 357.

Women in child-bed ought to be managed not only as persons sorely wounded, but as having gotten a feverish indisposition. Willis, p. 636.

† Hunter affirms that the blood is always sicc in breeding women. See a Treatise on the Blood, Inflammation, &c. By the late John Hunter. In two volumes. London, 1812. Vol. ii. p. 69.

ders.* Every thing calculated strongly to excite should be withdrawn, such as noise, light, and heat. And at the same time that the room should be kept at a moderate temperature and properly ventilated, we should be particularly careful to prevent currents of cold air from passing over the bed of the patient, for the reasons already mentioned.† .

The use of cordials cannot be too positively and repeatedly prohibited, since it is not uncommon for nurses to give the patients whom they attend a cup of burnt brandy, or caudle after delivery, and to add to the sago or gruel, which always ought to be taken in the simplest form, large portions of strong wine. And it is melancholy to think that such things are sometimes done expressly against the commands of medical practitioners. The deceptions practised by those persons, commonly called old experienced nurses, are hardly credible. In the presence of the physician, they will seem very desirous to carry all his orders into effect; but in his absence, either accommodate themselves to the whims of the capricious, or, appealing to their long experience, persuade the timorous patient to take a diet very different from that directed; and thus, between the hypocrisy of the one, and the weakness of the other, the deceit is successfully carried on, unless danger or accident should reveal it. The lives of many women, and the reputations of many accoucheurs have, I am fully confident, been sacrificed in this way. Whenever, therefore, professional men detect any thing like duplicity in the conduct of nurses, they should act in the most authoritative manner, immediately insisting upon their dismission; for it may be regarded as a moral rule, to

* The pernicious custom of binding the body too tight ought also to be avoided; as it will produce difficulty of breathing, head-ache, and oppression at stomach. Leake, p. 139.

† There is nothing so great an enemy to a woman in travail, especially to her whose childe is drawn away by violence, as cold. And thereof commeth manie grievous accidents, as hysterical suffocation, painful fretting of the guts, fevers, and other mortall diseases. Johnson's Translation of the Works of Ambrose Parey. Printed in 1649. See p. 615.

which there are few exceptions, that persons who once deliberately commit a dishonourable action can not be trusted with safety a second time.

Mismanagement in nursing is not confined to the higher, but extends to the middle and lower ranks of life, in which it has become an almost established custom to give distilled spirits and a flesh diet to women in child bed. Besides, in the first week of confinement, the rooms are crowded with a succession of friends and visitants, who generally converse, over a large fire, until a late hour at night. As improprieties of this nature are often followed by disagreeable, and sometimes by fatal consequences to the sick, they cannot be too publicly and frequently exposed.

If, notwithstanding every possible precaution, there should be the slightest accession of fever after parturition, and especially if the puerperal fever be prevalent at the time, or there be any circumstances in the patient which predispose to its attack, we ought to be extremely attentive ; as any fever may pass into the puerperal, particularly where great anxiety and irritability exist, because the main force of the general exitement will be liable to fall upon the abdominal viscera, from the peculiar state of the vessels there at that period.

PATHOLOGICAL REMARKS.

AFTER what has been said, it may be thought by some, that I ought to endeavour to find out the cause from which this fever immediately proceeds and derives its specific character ; but when I reflect how little is known about proximate causes, and how great the uncertainty of all reasonings *a priori*, I am induced to avoid this part of the subject, especially as I conceive it to belong rather to metaphysical, than to medical science. Such discussions indeed are far from being generally satisfactory, and, even when most ingeniously conducted, per-

haps not more profitable than the long agitated disputes of the schoolmen, respecting the essences of things, which, in some respects, they seem to resemble. The history of medicine, like that of every other science, clearly shows that conjectures have seldom led to useful discoveries; but, on the contrary, have often allured from the investigation of facts, to the consideration of those obscure and disputable relations which things unknown bear to the known phenomena of nature. It has been well observed, by a sensible anonymous writer, that in physic, more than in any other department of human knowledge, facts are every thing, and theory nothing.* It is, therefore, my determination not to connect hypothesis with the plain evidences of symptoms and dissections, by which, in my opinion, a true knowledge of pathology can alone be established, and from which my observations shall be chiefly drawn.

If an unprejudiced practitioner were called to attend a woman shortly after parturition, and found her labouring under an oppressive fever, the abdomen painful and distended, the skin hot, the tongue dry, the pulse very quick, the breathing hurried, and the secretions probably diminished or suppressed; and further, if he finally saw his patient fail a victim to the complaint, and, on accurately dissecting the body afterwards, discovered the most extensive traces of an abdominal inflammation, without any other appearances sufficient to account for death, he would at once conclude that the disease was of an actively inflammatory nature and would determine for the future to treat it, and every similar affection, with the greatest promptitude and decision. Such a conclusion and determination I would most earnestly recommend every medical man to form; first, because there is perhaps no disease more uniform than puerperal fever in the symptoms and morbid derangements which it induces; and secondly, because it can only be combated with the probability of success by antiphlogistic means. Almost every writer of eminence on the puerperal fe-

* See the *Electric Review* for October, 1813, vol. x. p. 343.

ver has recorded the uniformity of the symptoms and morbid derangements; and to prove the propriety and usefulness of the antiphlogistic methods of cure, I might appeal to the works of Mauriceau, Burton, Peautau, Heberden, Denman, Hulme, Leake, Gordon, and Hey, which constitute a satisfactory train of evidence upon the subject. Were I inclined, too, I might here also avail myself of the great candour of those authors who have treated puerperal fever as a putrid and typhoid dis temper, their impartial and disastrous reports forcibly demonstrating that stimulants, so far from answering a good purpose, are most decidedly prejudicial.

Some writers, of deserved celebrity, having considered the low fever of child-bed, which is sometimes epidemic, as specifically distinct from the puerperal peritonitis, it becomes, therefore, a matter of great practical consequence to ascertain whether symptoms and dissections justify such a distinction.

In the low fever of child-bed, pain, tenderness, and fullness of the abdomen, are generally discernible in the beginning; there is, likewise, a quick pulse, and preternatural heat, all of which symptoms appear in the puerperal peritonitis. But in the low fever, as it is termed, we find a weariness, greater prostration of the animal functions, an overpowering oppression of the whole system, which are not so apparent in the puerperal peritonitis, and which, together with the sometimes epidemical character of the former, have been thought sufficient grounds for classing it as a separate and distinct disorder. But passing from symptoms, let us endeavor, by dissections, to develope the true nature of this disease.

All the anatomical examinations which have been made on the bodies of those who died of the low fever of child bed, incontestably prove that if there be any difference between it and the puerperal peritonitis with regard to their inflammatory disposition, that difference merely consists in degree, the vestiges of inflammation being more strikingly evident, and extensively destructive in the former, than in the latter. For the truth of these affirmations, I refer, in particular, to the wri-

tings of Denman, Leake, Home, Hulme, Clarke, and Gordon, in which it will be found that the viscera of the abdomen—the peritoneum, the omentum, the mesentery, the mesocolon, the liver the stomach, the small and large intestines, the uterus and its appendages, the bladder, and even the pleura, and the lungs themselves, have all in their turn, been more or less affected by the inflammation attendant upon what they considered the true, puerperal fever, or what others have called the low fever of child-bed.*

It has been demonstrated by the accurate dissections of the late highly gifted Dr. John Clarke, that several quarts of a serous fluid, and large portions of coagulable lymph have been effused, in the course of a few days, into the cavity of the belly, during the progress of the low child-bed fever, and that, in those instances, the vestiges of inflammation left on the abdominal viscera, were by no means proportionate to the quantities of fluid and solid matter extravasated. These appearances led that enlightened physician to suppose, that the effusion was not the effect of active inflammation, but of a certain disposition of the vessels of the parts affected, specifically distinct from an inflammatory action. The properties of this fluid, however, the coagulable lymph every where covering the intestines, filling up their interstices, and the pain and general excitement which attended the previous disease, considerably lessen the force of this conjecture; and it will also appear the more improbable when we reflect, that the extravasation of so large a portion of serous fluid and curd-like matter would necessarily tend to obliterate the strong characters of inflammation, on the surface of the viscera and linings of the abdomen,

* If the reader should be desirous of consulting the authors alluded to here, respecting the morbid states induced by the puerperal fever, the following references may save him some trouble. Dr. Denman, vol. ii. p 494, 495. Hulme, p. 37, 38, 40, 41, 42, 43, 45, 46, 48, 53, 54, 55, 56. Foster, p. 296, 297, 298. Leake, vol. ii. p. 11, 106, 180, 181, 182, 197, 198, 199, 209, 210, 227, 228, 240, 241. Home's Clinical Experiments, p. 73, 77. Dr. John Clarke, p. 80, 81, 123, 124. Dr. Gordon, p. 31, 40, 118.

in some cases; and, in others, to render those characters less distinct than they would have been, provided a more inconsiderable exudation had taken place.* It is an indisputable fact, that inflamed internal canals and membranous surfaces often pass, with great rapidity, from the first state of inflammation, into the suppurative or effusive action.† Very considerable suppuration is occasionally found, on the membranes of the brain for instance, with hardly any vestiges of an increase of vascular action: but would any person deny, or has any person even conjectured, that this could take place without previous inflammation! If it be here objected that suppuration is not effusion, and that, therefore, the cases are not analogous, it is readily granted that suppuration is not effusion; but it cannot be disputed that these are two of the ways in which inflammation terminated; and if we always infer the existence of inflammation in the one case, how can we, in considering the puerperal fever, fairly deny it in the other? In short, it appears to me physically impossible than any thing but a highly active inflammation could occasion, in the short space of five or six days, so large a collection of serous fluid and coagulable lymph as that sometimes found in the cavity of the abdomen, after the fatal termination of the low child-bed fever.

* If an inflammation arise in a cavity, it may terminate in a number of different ways: one of these ways is by an increased secretion of the fluid of surfaces. A man receives a blow on the testicle; inflammation takes place, and the consequence is frequently a hydrocele or dropsy of the tunica vaginalis. A child's brain inflames, and this inflammation ends at last in hydrocephalus, or collection of water in the brain. Pleurisy frequently terminates in hydrothorax, or collection of water in the chest. I have often taken away forty or sixty pints of water which had accumulated in the cavity of the abdomen, in the few days the peritoneal inflammation has lasted, during the usual species of child-bed fever. Cruikshank on the Absorbing Vessels, p. 146.

† In inflammation of membranous parts which in health secrete a particular fluid, a liquid different from pus, and resembling more the natural secretion of the part, is formed. In this, as in the other case, the inflammation diminishes; but the patient has seldom any chills, nor is the structure of the part injured, at least further than by mere distension, if it be a cavity. John Burn's Dissertation on Inflammation, vol. i. p. 289, 290.

In discussing this question, it might reasonably be expected, that I should give some account of those dissections which my own experience has afforded, after the fatal issue of what might be deemed the true puerperal fever. In all of those dissections which I witnessed, the most unquestionable proofs of abdominal inflammation existed ; and the same has been invariably observed in many examinations made by some of my professional friends, in fatal examples of the hospital puerperal fever. In addition to these facts, the evidence of the able conductors of the Medical Review and Register may be adduced. They examined the bodies of thirteen women who died within a short space of time. In every instance the peritoneum was inflamed, and covered, as well as the surface of the intestines, with a layer of coagulated lymph, while a quantity of wheylike fluid was effused into the cavity of the abdomen.* Some go so far as to pretend, that the puerperal fever cannot be the same as the true puerperal peritonitis, because in the former the peritoneum which lines the anterior surface of the abdominal cavity, and which is not immediately attached to the viscera, has been found uninflamed, but this is at best the quibbling evasion of an embarrassed disputant ; for dissections discover, that some portion of this membrane has been invariably inflamed when traced throughout its whole extent, though certainly other parts, as in other fevers, are liable to suffer from the general excitement. From all that has been advanced, then, it may be laid down as a general proposition, that abdominal inflammation directly or indirectly is the cause of the fatal termination of all the varieties of the puerperal fever. But though I have strenuously contended, that the puerperal peritonitis, and the low child-bed fever, may be pathologically considered as modifications of the same disease, yet I have avoided the term identity, because I have no inclination to enter into abstract discussions, or nominal disputes. Nor will I take it upon me to assert, that there is always a perfect same-

* See the Annual Medical review and Register for 1809, vol. ii. p. 273.

ness, since there necessarily must be such a difference as arises from the peculiarities of the patients, from the parts within the abdomen most decidedly attacked, and from the influence of the seasons and other circumstances. Nay, I have no objection to grant, that the inflammatory character of this disease sometimes conceals, and even appears to loose itself in an almost unequalled prostration of the powers of the system. What I wish, however, particularly to insist upon is this, that the low child-bed fever, and the puerperal peritonitis, are so far the same as to require the depletory practice; only in the former this practice must be more promptly and powerfully applied, as the time in which the professional man can be useful is much shorter, on account of its greater intensity.

It cannot be denied by any one, that the disease which I have delineated in the beginning of this work deserved the name of an epidemic, in the most strict sense of the word; and yet some cases of that epidemic bore the character of a simple inflammation of the peritoneum, and others again assumed a more mixed and malignant character, from the greater depression of the general powers. It was the certainty of this fact, together with the disease being remarkably limited to the practice of certain individuals, which mainly induced me to believe, that it was contagious; and reasoning from the similitudes in the cases which had previously come under my observation, and from the general analogies in the laws of febrile diseases, an inference was drawn precipitately, that the puerperal fever is invariably of a contagious nature. So many experienced correspondents, who had no theory to support, have spoken so confidently of the non-contagious character of the puerperal fever under its ordinary or sporadic form, that it would be presumption in me to suppose them mistaken rather than myself; and if the puerperal fever be not contagious when it is sporadic, it becomes a most interesting question to ascertain whether or not it be contagious when it is epidemic. Many of the causes of fever, especially those connected with certain states of the atmosphere, are involved in so much ob-

security as often to leave room for considerable doubt; and it seems as if it were almost a principle of our constitution, that rather than vacillate long in doubt, the mind will rest even upon error. Hence in things highly interesting to us as moral and intellectual beings, we often find that repose in some dogma, which we in vain sought for in the deliberations of philosophical inquiry; and hence too, in what relates to the explanation of the more subtle causes of our physical disorders, we perhaps too frequently have recourse to contagion for a solution of some perplexing difficulty. Two of the gentlemen in whose practice the puerperal fever appeared in the north of England, during the year 1813, became so fully assured of their conveying the contagion, that they withdrew from their professional avocation for a time; and though at that period an equally confident impression was made upon my mind, as to the infectious property of the disease, yet I shall not now draw any inference on the subject from the facts recorded, but leave them for the consideration of others, who may be disposed to accumulate evidence on a point so important. An attentive perusal of various treatises, and a cautious survey of those cases which I have myself seen, would authorize me to conclude, that the puerperal fever may proceed from a variety of causes; and future observation will probably bear me out in affirming, that any circumstance which gives a general shock to the system, is fitted to produce the disease in habits already predisposed. But if it be asked, why a variety of causes should produce the same effect, we must look to the peculiar condition of the abdomen at the time of their application: for it must again be repeated, that if a general excitement occur, the principal mischief, of that excitement will be most liable to happen where the state of the circulation had been previously most disturbed; and this is a pathological doctrine of such extensive application, that some pains shall be taken to illustrate it, in an essay which will shortly appear in an amended edition of my treatise on typhus.

TREATMENT.

No medical man can be ignorant of the great diversity of treatment which has been pursued in the puerperal fever. Being persuaded that much of this diversity proceeds from want of a proper regard to the distinctions between the stage of excitement and the stage of collapse, the reader must excuse me for again briefly reverting to those distinctions; as it was repeated observations of the disease as existing under two different states, that led to the discovery of those principles which have been found at once simple and adapted to the nature of the complaint.

The puerperal fever is sometimes ushered in by a rigor, and sometimes merely by some degree of preternatural paleness of the surface; but in both cases there is a diminution in the force of the pulse, and also more or less diminution of the animal heat. This stage ought to be accounted the first, because it almost invariably precedes what is usually called the re-action, or the establishment of the true febrile state. But as this obscure stage is common to other affections, and as the character of the puerperal fever cannot, in general, be said to be truly declared till the re-action exist, the occurrence of that re-action, and its continuance to its highest point, shall be denominated the stage of excitement; and on the other hand, the marked declination of that excitement, and the symptoms of constitutional exhaustion which supervene, shall be denominated the stage of collapse, for the purpose of more forcibly contrasting the different states of the system in these two stages.

As soon as the heat becomes greater and the pulse quicker than natural, the stage of excitement may be pronounced to be established. In this stage the skin is commonly dry as well as hot; but in some instances it is partially damp while it is

universally hot, and this is particularly liable to happen where the pain is violent, or where the stomach is affected with nausea or vomiting. The pulse is hardly ever less than 120 during this stage, and in some rare cases as high as 140 in the minute, or even higher. In general the blood does not flow in a soft, easy, tranquil current, but comes against the finger with a vibratory sort of motion; and more than ordinary pressure is commonly requisite to stop its course along the artery, which in such cases feels hard and tense, like a cord upon the stretch. Yet there are some instances in which the pulse is very quick, and peculiarly soft and compressible, from the first occurrence of the stage of excitement; though this, so far from being more favourable, is considerably more dangerous than the hard resisting pulse, for it marks a relaxation of habit highly to be dreaded in every form of fever. In this stage, too, the patient complains most of the abdominal pain and soreness, breathes above thirty times in the minute, and rather anxiously, has a white foulish tongue, considerable thirst, and much febrile restlessness and irritation. The belly is generally bound, and bile or mucus vomited in some cases; but in others the stomach is little disturbed, though its powers in most are prostrate.

In the stage of collapse, the pulse always becomes exceedingly weak and small, and in most cases is above 140 and in some above 160 in the minute; though in two, which I attended since the first edition of this work was published, the pulse fell somewhat below 100 a few hours before death, still continuing very thready to the last. The respiration generally becomes much quicker, shorter, and weaker in this than in the preceding stage; so that it is not uncommon to see some patients breathe above fifty times in the minute; but I have known a few cases, where the brain was embarrassed, in which the respiration became very slow and impeded before death. On the supervention of this stage, the heat begins to decline, and is not equably diffused over the surface, as in that of excitement. Cold partial perspirations first break out about the

face, neck, and extremities ; the central parts of the body often remaining dry, and of a superficial glow, for some time afterwards. The patient now mostly vomits both her food and medicine, which are apt to be tinged with a dark grumous matter ; and the belly is commonly loose from the commencement of this stage, and the abdomen much distended with flatus. The tongue in some cases has a brown or blackish appearance, in others it is red, rough and parched ; but where there is much fluid vomited, it is often moist, and has a pretty natural appearance. The thirst is generally unquenchable in this stage, and the patient becomes less and less capable of assisting herself by voluntary efforts. The countenance is sunk, yet often agitated, the face and lips cadaverously pale, and the alæ nasi in almost unceasing motion ; while the patient lies flat upon her back, often moving her hands and drawing up her feet, or now and then unexpectedly throws herself into some strange attitude. There is often much moaning or muttering in this stage as if great uneasiness existed, which, however, is seldom referred, on questioning, to any particular part ; but several hours before death, the sensorial functions are in general some way disturbed, and the skin becomes remarkably relaxed, damp, and cold. In fine, the stage of excitement is marked by inflammatory, and the stage of collapse by low malignant symptoms ; and the degree of the latter is almost invariably in proportion to the degree of the former.

Perhaps scarcely any of the above symptoms, taken singly, can be depended upon as distinctions between the stage of excitement and that of collapse ; yet as several of them accompany or succeed each other, they may together enable the practitioner to discriminate each of these states in the puerperal fever. The stage of excitement is variable as to its duration, being regulated by the degree of the general fever, and of the local affection. Sometimes it terminates in twenty hours, and at other times extends to seventy, even when the inflammation is of the acute kind ; but in that slow modification where the general fever is not urgent, and where the ab-

dominal inflammation is sub-acute, this stage may be much more protracted. The period of time, too, which the stage of collapse occupies, is likewise very uncertain. If it be accompanied by gangrene in some of the viscera, it does not last many hours, and if by suppuration, it is generally mortal in a few days: but where it is accompanied, as generally happens, with an effusion of serous fluid and coagulable lymph into the abdomen, it may occasionally continue a longer time; and though in some rare instances, it may even present the possibility of recovery, yet it is commonly soon fatal, from the exhaustion and irritation with which it is combined.

In the treatment of all febrile diseases, and of the puerperal fever, in particular, it is of the greatest consequence to distinguish between apparent and real debility, between a state of the system in which the general powers are depressed but not subdued, and an opposite state of collapse, in which those powers are absolutely and exceedingly weakened: for in the former case, what appears to be a state of debility can only be removed by depletion sufficient to take off the load by which the strength is suppressed; but in the latter case, the period for depletion, at least by the lancet, is completely past, and the prostrate powers must then be sustained by invigorating measures. In the epidemic which occurred in the north of England, there was an appearance of excessive debility in many cases soon after the attack; *but in all it was purely an appearance of debility in the beginning*; in a word, an oppression dependent upon the general excitement and topical inflammation. In the last stage, however, the debility was altogether of a different description, being then connected with general exhaustion and general irritation—the mere consequences of the unrestrained excitement and inflammation, which had previously taken place.

If I might be allowed to judge from my own experience, it may be laid down as a general principle, that the abdominal inflammation is greatest in those cases of the puerperal fever which are attended, from the beginning, by most oppression

of strength, and of the vital powers; and it will be found a most fatal delusion to be deterred from early bleeding and purging by the semblance of debility, which only serves as a covering to obscure the destructive progress of the abdominal inflammation. It was indeed this semblance of debility which deterred some practitioners from the employment of the lancet, in several of the most formidable cases which occurred; and it was only a fatal experience which convinced them of the mistake, and which determined them to adopt an active practice, in opposition to the prejudices imbibed at the schools. In the beginning, the puerperal fever may be considered as an alarming irregularity of the system, capable however of being generally corrected by prompt and decisive means; but in the last stage, the functions or structure of the grand machinery of life are so much deranged as to be utterly irreparable. The puerperal fever, under every form, will only be found remediable in the stage of excitement; at least nothing can be done with the probability of success when the general collapse supervenes. It is in the commencement only, that the inflammatory symptoms are manifested; and when the excitement has passed its acme then come the malignant symptoms, which have been supposed to constitute the essence of the low child-bed fever; but in fact these symptoms are nothing more than the effects of that excitement, and therefore the term low child bed fever is calculated to convey very erroneous notions of the nature of the disease, being in strictness only applicable to the last stage.

These observations may serve to show how dangerous are the opinions of those who recommend stimulants from the very onset of the puerperal fever; since such agents must necessarily increase the irregularity in the system during the first stages, and thus contribute to hasten that derangement of the vital organs which is, directly or indirectly, the cause of death in the last stage. The advocates, indeed, for the stimulant treatment have been so candid as to confess, that it has rarely been attended with the desired success, by far the greater

number of their patients having sunk under its employment. Yet so far from conceiving, that the treatment was in any manner concerned in this awful fatality, they have attributed every thing to the irremediable nature of the disease ; nay, they have gone even further, and in their zeal against innovation, have condemned the depletory practice, without even having given it a fair trial. Some men come to the consideration of important subjects with a creed and a character which they had passively but deeply received ; and such men seldom view things as they are actually regulated in nature, but in general according to the prescriptions of their predecessors. The most authentic records, however, in regard to the puerperal fever, if impartially examined, do go to demonstrate, that evacuants have been generally successful when properly used ; and it may be safely asserted that, for the most part, they have only failed when they were not employed sufficiently early, or not carried sufficiently far, as might be proved by references to Leake, Hulme, Denman, Gordon, and other authorities. It is still the constant cry of many, that you must refrain from depletion in the beginning of fevers, by way of preserving the powers in the advanced stages ; but this is a doctrine alike dangerous to the reputation of the practitioner, and to the life of the patient : for the best way of sustaining the powers in the advanced stage of fevers, is to cut short or reduce the excitement in the first ; and to withhold the measures which do this, is to expose the subjects of fever to the chances of fatal derangements in the structure or functions of the vital parts within.

During a residence of several years in Sunderland, some cases of the puerperal fever, chiefly occurring among the poorer inhabitants annually came under my care. For the most part, my opinion was not requested till the disease had existed some days, and I found that whatever plan was pursued, the event was generally disastrous. Blood-letting invariably sunk the feeble remains of life with great rapidity ; a liberal allowance of wine and cordials was, if possible, more speedily de-

structive ; and although purgative medicines, and a nutritious diet, protracted, they seldom saved the life of the patient.— Being fully aware of the inflammatory nature of the puerperal fever in the first instance, when called early, I almost always ordered one venesection from a large orifice, cathartics daily, and a spare diet during the continuance of the urgent symptoms. In the main run this practice succeeded, though now and then a solitary patient was lost, even when it had been commenced under the most favorable circumstances. From these facts, it clearly appeared that the complaint, when attacked in the commencement, was generally curable, but, when advanced beyond a certain point, almost always irremediable. It likewise forcibly struck me, that when purgative medicines failed to procure stools in the first instance, the disorder commonly gained so much power, in the time lost in their repetition, as to become uncontrollable. This naturally led me to give larger doses, that the bowels might, if possible, be thoroughly opened at an early stage of the disease. Having, however, witnessed some cases in which the aperient plan was not singly adequate to the cure, I was the more satisfied, that both venesection and purging were generally necessary. Thus far were my views extended, when the disease, described in the beginning of this work, began to attract the most serious attention, from the death of five women in rapid succession. In three of these cases the active use of purgatives had been entirely trusted to, with a strict antiphlogistic diet, and occasional anodynes. In the other two, moderate bleeding was conjoined ; and it was observed, that in these the greatest relief had been afforded to the symptoms ; though the purgatives in the other examples had always less or more alleviated the abdominal uneasiness, when they acted freely in the stage of excitement. Four of the fatal cases having occurred in the practice of Mr. Gregson, and my opinion having been requested in three of them, it may readily be conceived that we felt great anxiety from such untoward events. On reflection, however, we were sensible that we had followed the only principle

of treatment upon which any reasonable confidence could be placed ; and if we had any thing to regret with respect to ourselves personally, it was in not having carried this principle of depletion sufficiently far in the commencement.

In fact, every review of these unfortunate cases tended more strongly to convince me of the truth of my former impression, that bleeding and purging were the most promising remedies ; and experience had taught me that even these would be inefficient, unless they could be brought to operate powerfully together on the disease in its first stage. Thus prepared, I determined to unite and carry venesection and purging further than before, if any cases of the same kind should again be timely entrusted to my care ; and an occasion soon offered itself which enabled me to put my determinations into effect, not only without opposition, but with the complete concurrence of Mr. Gregson, the attendant surgeon, whose opinions were similar to my own.

The patient had not been ill longer than twelve hours, and the case seemed fully as threatening as any of those which had ended unfavorably. Twenty-four ounces of blood* were immediately drawn from a large orifice so as to induce fainting, one scruple of calomel, suspended in mucilage, given immediately afterwards, and two ounces of strong infusion of senna, containing two drachms of the sulphate magnesia, ordered to be taken every hour till copious evacuations should be produced. The attendants were directed to allow the patient barley water, agreeably acidulated with lemon juice, for a common drink and diet, and to withhold the smallest portion of solid food, or stimulating liquids. In about four hours the medicines began to operate, and several copious, dark, fetid stools were discharged ; from that time considerable relief was obtained, and a regular perseverance in purgatives, with mucilaginous drinks, and a small quantity of exceedingly weak chicken broth, completed the cure in five days. Several

* In all the cases, the blood drawn was covered with a buffy coat.

cases of a similar description succeeded, and being treated upon similar principles, the result was equally favorable. In some instances, however, it was found that more than a scruple of calomel was necessary to act fully on the bowels with the desired rapidity, the dose was accordingly increased to half a drachm, not only without danger, but apparently with decided advantage. When the inflammatory symptoms were subdued, small opiate draughts or enemata were very useful in allaying the irritation of the system, and inducing quiet sleep; but they seemed to be prejudicial in the very commencement of the fever, before evacuations were employed.

Three severe cases which I attended were treated by blood-letting, purging, and vomiting, successively employed in less than twelve hours, and the united influence of these was certainly very striking; a complete change having been brought about in the state of the circulatory system, and almost every symptom of inflammation and fever entirely subdued. Dr. Denman, M. Douleet, and other writers have borne testimony to the usefulness of emetics in the puerperal fever; and, though thinking favourably of them myself, when given in the manner above mentioned, yet I must confess that bleeding and purging were the two remedies, in which my chief confidence was placed in the treatment of this epidemic.

My correspondent Mr. Wolfe, whose opinions I greatly respect, relies principally upon the daily exhibition of purgative medicines, and his practice has been generally successful. This may be partly attributed to his discernment and unremitting attention to the duties of his profession; the former enabling him to detect, and the latter to attack the disorder when first advancing. But from repeated conversations which I have had with Mr. Wolfe, it would seem, that the cases which have fallen under his observation were divested of the violence of the worst forms, which will be found to require a combination of the most powerful means that have been singly recommended and adopted by practitioners of the first authority. This was so much the case in the epidemic, which

has been made the chief subject of these pages, that hardly any patients escaped who were not early bled, except those which Mr. Wolfe attended, and a few others which had a subdued character. It is worthy, too, of particular notice, that the disease fell under the observation of some who had received an early and a strong prejudice against venesection, but they finally abandoned this prejudice from its being fatal to their patients, and became the decided advocates for the use of the lancet from direct proofs of its efficacy. Some differences, indeed, exist on minor points, among those gentlemen who honoured me with their correspondence, but they all agree in the principle of early and powerful depletion. This remarkable agreement appears to lay the foundation for a fair inference in favour of the inflammatory character of the puerperal fever; since those who have treated it successfully, in whatever else they may differ, accord in this, that it can only be overcome by such means as are constantly had recourse to for the removal of inflammation. In many of the cases which occurred at Sunderland, one blood-letting, carried to syncope, and assisted afterwards by purgatives, sufficed to accomplish the cure, but in some a second venesection was requisite; and where it was promptly employed on the continuance or recurrence of the urgent symptoms, it was highly advantageous. The following case, however, will serve to show, that even repeated bleeding may be of comparatively little benefit when partially adopted in the first instance, and at a considerable interval in the second.

Catherine Bewick, aged nineteen years, unmarried, and of a robust habit, was delivered of her first child on the 23d of August, 1813, after a severe labour. The placenta was thrown off about twenty minutes after the birth of the child; and though the discharge had hitherto been trifling, in an hour it became so considerable, as to require the application of cold to restrain it. Mr. Tulloch, who attended this woman, on visiting her the next day, found that she had passed a good night. Her bowels had been freely moved from some castor oil, which had been administered before her delivery. Thers

was neither pain nor tension over the abdomen, and she had passed her urine freely without the least uneasiness.

Mr. Tulloch being unavoidably called to a distance early on the morning of the 25th, he requested a professional friend to pay her a visit in the course of the day. On his return in the evening, he learned from his friend, that at midnight on the 24th, the patient had been seized with a strong rigor, which lasted for some time, and which was followed by a hot fit, and all the usual symptoms of the puerperal fever. The disease had existed about ten hours when this gentleman was called to attend for Mr. Tulloch, and he immediately drew about twelve ounces of blood from the arm, enjoined a strictly antiphlogistic regimen, and prescribed ten grains of calomel to be taken immediately, and four table spoonfuls of an infusion of senna, with salts, every two hours afterwards, until the bowels should be freely moved.

At six o'clock in the evening another visit was made, two very small stools had been procured, the abdomen was still tense, and very painful on the slightest pressure, and the pulse 130 in the minute.

From the urgency of the symptoms, this gentleman was then induced to draw sixteen ounces of blood, and to direct a continuance of the purgative mixture. Mr. Tulloch having returned from his journey at nine o'clock, he immediately visited the patient with his friend, and they were both disappointed to find that the purgatives previously taken had failed to procure free evacuations, the pulse had risen to 160, and the anxiety, restlessness, heat, pain and tension of the belly were all increased.

At this period, my assistance was first requested, and it was agreed in consultation, that half a drachm of calomel, in an ounce of the mucilage of gum arabic, should be directly given, and the dose of the mixture repeated every hour. At midnight another visit was paid. The patient had passed several large stools, the pulse was now 140, the pain and tension of the belly were greatly relieved, and the anxiety, thirst, and restless-

ness, considerably diminished. The mixture was ordered to be continued as before.

As one stool had only been proeured by five o'clock in the morning of the 26th, ten grains more of calomel were given in a bolus, and the mixture repeated. Two hours afterwards, she had two copious stools of the appearance of gruel. The pulse was then 120, the tenderness, pain, and tension of the belly diminished, the countenance less anxious, the tongue cleaner and moister, and the thirst not so urgent. By continuing the mixture, three additional stools were procured before noon when it was omitted, and one prescribed containing three ounces of castor oil, with nine of mint water, of which four table spoonfuls were directed to be taken every two hours. At nine o'clock in the evening the bowels had been three times copiously moved from the castor oil, on which account it was not repeated; but by way of lessening the force of the circulation, the third of a grain of tartarized antimony was ordered every two hours, and thirty drops of the tincture of opium were given at bedtime, to allay irritation. On the morning of the 27th, it was found that she had obtained but little sleep, and no evacuation by the bowels. There was some slight increase of fever, probably arising from these two circumstances. Two ounces of the sulphate of magnesia, with one grain of tartarized antimony, and nine ounces of the infusion of senna, were prescribed as a mixture, four table spoonfuls of which were administered every two hours during the day. At eight o'clock in the evening it was reported, that she had three very plentiful stools, and that the pain and tension of the belly were nearly gone, though the former was still increased by pressure. The pulse remained at 120, but the anxiety, heat, and thirst, were all considerably abated. The anodyne was repeated at bedtime, and a mucilaginous drink slightly acidulated ordered to be taken occasionally, in a little barley water. She passed a good night, the pulse the next morning was still 120, and the other symptoms as before. Weak chicken broth was now allowed. Castor oil was again prescribed; and in the course

of the day she took so much as three ounces, which purged her five times; but the stools had now a natural appearance, and though the skin was hotter than natural, yet it was perspiring freely. The pulse still continued at 120, and slight pain was felt on pressure over the belly. The anodyne was repeated at bed-time, and moderate doses of the liquid ammon. acet. ordered during the night at intervals of two hours, in order to keep up the perspiration. She got no sleep, and at ten o'clock on the morning of the 29th, she complained much of pain nearly in the situation of the right lateral ligament of the uterus. The skin was very hot, though she still perspired freely, and the pulse had risen to 130, and was rather hard. One scanty stool had been passed with some griping pain, and the anxiety, restlessness, and thirst, were much augmented. The sudorific mixture was omitted, and ninety drops of the tincture of opium prescribed, under the form of a small enema, that it might be retained in the rectum. She was rather easier from the injection, but at noon the abdominal tenderness, tension, and pain, had returned, the last of which was increased by the slightest pressure. The pulse continued at 130, the tongue was dry, the thirst intense, the countenance pale and dejected, the skin very hot, but moist; and these symptoms were accompanied with aching of the temples, and impatience of light and noise. As it was conceived that the chicken broth might possibly have been made stronger than was directed, or that at all events it might have increased the excitement, it was omitted, and gruel with a little milk, substituted. Four table spoonfuls of the mixture, containing two ounces of the sulphate of magnesia, were ordered to be taken every half hour, until the bowels should be freely opened. At nine in the evening all the mixture had been taken, but without effect; and the pulse was then 135, the restlessness great, the thirst intense, the countenance extremely anxious, the respiration short and quick, and the rest of the symptoms the same as at the morning visit. An ounce and a half of castor oil was given in a little warm coffee; but two hours afterwards no evacuation

by the bowels had followed, the pulse had risen to 140, and it was small and compressible. In other respects there was no material change. Warm fomentations were ordered to the abdomen, a common purgative enema administered, and a scruple of calomel given in the mucilage of gum-arabic.

She was visited at seven o'clock on the morning of the 30th, and the medicines had occasioned five very copious stools of a much darker colour than before. From these evacuations, she had experienced great relief, the pulse had come down to 120 in the minute, the heat of the surface was lessened, the tongue moister, the countenance more composed, but the pain of the right side was still severe, especially when she moved, or when pressure was applied. Slight ptyalism was now observed for the first time. In the course of the day she took, in divided doses, five drachms of a powder composed of equal parts of jalap, and the supertartrate of potass, from which she procured three evacuations by six o'clock in the evening, when the anodyne enema was again ordered, on account of the continuance of the abdominal pain and general irritation. But as this had procured no sleep, as the pulse was still above 130, and as the other symptoms remained unaltered, at ten o'clock the same evening, a mixture was prescribed, containing two ounces of the sulphate of magnesia, eight of mint water, two scruples of jalap, and two grains of tartarized antimony. But under an impression, that she might possibly still obtain some rest, it was directed not to be exhibited till two o'clock on the ensuing morning; when three table spoonfuls were to be given, if awake, and repeated every two hours afterwards. She had several hours of sleep in the night, and at eight o'clock A. M. of the 31st, she was rather more composed; the heat and thirst being less urgent, and the pulse six beats less in the minute. As only a part of the mixture had been taken, it produced no evacuation, and even the whole of the remainder was ineffectually administered; so that at noon one ounce and a half of castor oil was given, which occasioned four dark-coloured stools by eight o'clock in the evening, when the pulse was 125,

and the other symptoms as before. Twelve grains of the compound powder of ipecacuan were ordered at bed-time, with a view of allaying uneasiness, and exciting perspiration.

She had but little sleep, and on the next morning, the 1st of September, there was no material change in her condition. The anodyne enema, was once more had recourse to, and four of the colocynth pills with aloes were directed to be taken every six hours. But at eight o'clock in the evening the bowels had not been opened, and the pulse was then 130, the heat of the surface considerable, the countenance extremely anxious, and much pain on pressure over the abdomen. The cathartic pills were omitted, and a drachm of the compound powder of jalap prescribed immediately, and half a drachm was ordered to be exhibited every two hours afterwards, until the bowels should be moved freely. Having taken two drachms and a half of this medicine, she had four copious and feculent stools, after which she slept about three hours. At nine o'clock in the evening, the pulse was 125, without any other alteration of consequence in the symptoms; but as she appeared to be much exhausted, beef tea, chicken broth, and milk, were allowed to be given freely. At eight o'clock in the evening, it was reported that she had had no stools since the morning. The pulse was 130, the tongue dry, the thirst great, the heat, restlessness, and anxiety considerably increased; while a general tumefaction and pain existed over the belly, accompanied with much confusion of thought, and a more urgent uneasiness in the head. An ounce and a half of castor oil was immediately given in warm coffee. After having had four evacuations, she obtained some disturbed sleep. But at an early hour on the 3d, the pulse was 140, the countenance pale, anxious, and dejected, the tongue dry, the thirst urgent, and the perspirations were profuse, without at all reducing the heat of the skin. The respiration, too, had become short and wheezing, and considerable enlargement, with tension and tenderness, had taken place over the abdomen, which felt as if an effusion had taken place into its cavity. As the chicken broth seemed

formerly to have augmented the excitement, it now appeared, as highly probable, to have produced a similar effect, aided by the beef tea; and on this account they were both ordered to be immediately omitted, and gruel, with a little milk, was directed instead.

As the case now seemed all but hopeless, and as active purging had before given decided relief, for a time, it was resolved once more to try the full influence of this plan. Twenty-four grains of calomel were therefore given in an ounce of mucilage, and four table spoonfuls of a mixture, composed of two ounces and a half of sulphate of magnesia, and eleven of the tartarized infusion of senna, were ordered every four hours, till the bowels should be plentifully evacuated. At the evening visit, it was found that the patient had procured five very copious stools, which contained, to our surprise, many small pieces of dark coloured scybala, which had probably been retained for some time. The pulse was now only 125; the heat, thirst, restlessness, and anxiety were all greatly relieved; and the swelling and pain of the abdomen considerably less. Four table spoonfuls of the purgative mixture were ordered to be taken every two hours during the night, if the patient should be awake. Soda-water was recommended for the common drink. She had a sleepless night, owing to the frequent operation of the purgative medicine. But on the morning of the 4th, the pulse had fallen to 120, the countenance was less depressed, and the swelling and tenderness of the belly were quite gone. Still some wheezing existed, but without pain or tightness of the chest, so that it seemed to be purely bronchial. The tongue was cleaner, notwithstanding the thirst; and dark copious stools had been procured, with flocculi of a whitish appearance floating on the surface. The purging mixture was discontinued; but three additional evacuations occurred before the evening, from the doses previously taken. On account of the wheezing being rather more troublesome, and the pulse, somewhat quicker, half a grain of opium was given at bed time, and a similar dose ordered to be repeated in four hours, if

sleep should not be obtained. Besides, a pectoral mixture was prescribed, chiefly composed of the vinegar of squills, with the common mucilage, and a very small portion of laudanum. About this time, the abdominal were completely lost in the pectoral symptoms, which continued till the 6th of September, when a blister was applied to the chest, which gave great relief. From this period she recovered apace; and in about a month afterwards returned to her ordinary employment of a menial servant. This interesting history is only a narration from the notes, which were most carefully taken by Mr. Tulloch,* whose great attention, skill, and kindness so largely contributed to the recovery of the patient.

If this case had been treated more actively by the gentleman who was first consulted, it is highly probable, as he himself afterwards thought, that it would have been speedily cut short; and if it were possible that I could be again called in under precisely the same circumstances, I would employ venesection decisively, though the lancet had been twice previously used; for the strength of the patient was then not only unsubdued, but the inflammation in the abdomen existed in full force, and therefore bleeding should not have been withheld. The extreme nervous irritation which existed was the reason why blisters were not employed after she came under my care; but it is not unlikely that local blood-letting might have been advantageous, an application which I would not now omit in an instance of the same kind. As for the rest of the treatment, it may be remarked generally, that I prescribed too much medicine; so that if the case were to be treated over again, I should keep an action on the bowels by less complicated means. Two errors were committed in the diet, for it was evident, that she became worse each time after the exhibition of the animal broths, which sometimes, even when weak, stimulate the heart more than might be *a priori* expected; and it may be regarded as a general rule, that the regimen ought to be strictly anti-

* Now Surgeon in Newcastle-upon-Tyne.

phlogistic till the inflammatory symptoms be subdued, and therefore the *dieta aqua* is undoubtedly the best. The following case where the lancet was only twice called for, may serve to show how much depends upon the manner and time in which it is employed.

Mrs. R. a stout and healthy young woman, in the 28th year of her age, was delivered on the 2d of the month. She had a natural and easy labor, and seemed to be recovering extremely well, till very early on the morning of the 4th, when she was seized with shivering speedily followed by head-ache, nausea, and retching. At noon of the same day, about ten hours after she felt first indisposed, I was requested to visit her; the pulse was then as high as 134 in the minute, the skin pungently hot, the tongue white and dry, the milk and lochia almost entirely suppressed, the urine passed with some uneasiness, the breathing much quickened, the abdomen tense, and so sore that the weight of the bed-clothes could not be borne upon it. Her countenance was very anxious, and she complained of great oppression, pain, and weakness.

Twenty four ounces of blood were drawn immediately from the arm, and she fainted. A scruple of calomel, mixed in mucilage was given immediately after venesection, and two drachms of the sulphate of magnesia, with an ounce and a half of the infusion of roses, ordered to be taken every hour till five or six copious stools should be procured. Barley water with a little isinglass in it, was allowed as a common drink and diet. When she was again visited at six o'clock in the evening, it was found that the blood abstracted had a firm crasmentum, which was cupped and sizy. The patient had passed only three scanty, fetid evacuations, and did not appear to be much relieved, the symptoms being then nearly as urgent as at the last visit. Twelve ounces of blood were taken away immediately which again made her faint. Twenty grains of calomel were prescribed, and a mixture, composed of an ounce and a half of the sulphate of magnesia, and six ounces of an infusion of roses, two table spoonfuls of which were di-

rected to be taken every hour after the exhibition of the calomel, till the bowels should be freely and plentifully opened.

She was visited at six o'clock the next morning. The blood drawn last evening was covered with a buffy coat. All of the medicine had been taken which produced seven large, dark stools. The patient was very considerably better; her belly felt soft, and she could bear pressure with very little inconvenience. The skin was warm and moist, and the pulse reduced to 100 in the minute. An anodyne enema, containing 120 drops of the tincture of opium, was directed to be injected immediately, and the common neutral mixture to be taken in the course of the day, with a very little weak chicken broth now and then. Several hours of sleep were procured by the anodyne enema, and from that time the patient might be considered convalescent, but her bowels required to be kept open by castor oil five or six days longer.

In the first obscure stage in which the puerperal fever is ushered in by paleness of the surface and oppression, or by a pretty distinct attack of rigor, the animal heat is almost always below the natural standard; and it is of great consequence towards lessening the degree of the subsequent excitement, that the natural temperature of the surface should be as rapidly restored as possible. When a tepid bath, therefore, can be speedily obtained, it frequently has an excellent effect, if it can be used without fatiguing the patient; and where that cannot be speedily had, the blandest tepid drinks must be recommended, and warm bottles of water put to the feet and stomach, which are good substitutes for restoring the circulation of the surface, and relieving the internal organs from an over pressure of blood. An enema should first be ordered, and a dose of castor oil afterwards by way of more effectually clearing the bowels. All kinds of diffusible stimuli ought to be expressly prohibited at this period, for they are extremely pernicious. The animal heat having been restored, and the character of the disease developed, not an instant of time ought to be lost in attempting to arrest it: and even in those cases

where some doubt may exist respecting the actual presence of inflammation, it is better as a general rule, to bleed at once; for by trusting to a purgative, or to some other secondary measure, the patient may thereby be lost from the delay, and even in ordinary fever occurring in child-bed, no harm can result from early and moderate venesection.

In acute diseases, it has been too much the practice to confide in one principal measure, but in general they may be best removed by a series of antiphlogistic measures. Although strenuously insisting upon the utility of venesection at an early period in the stage of excitement, yet it was never my intention to affirm, that it is of itself generally equal to the removal of the puerperal fever. On the contrary, it has commonly failed in my hands unless followed by free purgation; and on inquiry, too, I find, that the patients of those authors who adopted venesection generally died, when the purgatives did not act at all, or only imperfectly. It is not, then, simply bleeding and purging in which I have so much confidence, but in copious bleeding, immediately succeeded by copious purging, or rather in the powers of these two means simultaneously exerted on the disease at the onset.

It has already been noticed that the puerperal fever often remits at the beginning of the second, and at the end of the third day, and, as such a calm is often the prelude of another and more serious attack, laxatives should rarely be intermitted till after the third day. The quantities of excrement discharged in the course of this complaint are frequently so very great that nurses, and even patients themselves, often strenuously oppose a regular perseverance in the use of laxatives, conceiving that such extraordinary evacuations can neither be necessary nor useful; but appeals of this nature must never turn the practitioner from his purpose, and so long as there are pain and tension of the abdomen, a quick pulse, and offensive stools, he must steadily proceed, unsubdued by remonstrances, however urgently made.

When the stomach, as occasionally happens, is so excessive-

ly affected in the commencement, that almost every thing taken is immediately ejected, the ease may be considered violent, and it strongly indicates the necessity of liberal blood-letting, which at once tends to lessen the disorder, and to allay the irritability of the stomach. Immediately after bleeding, however, a large cathartic enema should be administered, as evacuating the lower part of the intestines is favorable towards the retention of the purgatives afterwards exhibited; and in such examples calomel in mucilage will be more likely to be retained than any other, especially if combined with a little opium, which does not tend to constipate in inflammatory affections of the abdomen, as I have witnessed in numerous cases. The bowels having been completely opened, the sickness will most frequently abate; but if it should not, it is a sign of some visceral mischief, which demands the prompt use of the lancet.

When the fever is known or supposed to be contagious, many practitioners object to the bare proposal of general depletion, and especially when such an affection attacks a woman in child-bed, the exhaustion induced by delivery, and the additional debility supposed to be the consequence of contagion, strongly inclining them to adopt the gentlest measures. But, if we consider, that there is a great change produced upon the system, by the return into the circulation of a portion of the blood which supported the foetus, that the weakness succeeding parturition, so far from preventing, is the very state in which phlogistic diseases most readily take place; and above all, that the puerperal fever is invariably attended by an active abdominal inflammation, no fears about debility and contagion should deter us from depletion, the only remedy in this formidable malady. It is not, however, in the partial adoption of the means recommended, that success will be found. Small bleedings and partial purging may weaken the patient, but will not remove the disease; whereas free bleeding and active purging will subdue the disease, and leave nothing but mere debility to be counteracted.

The great object of bleeding in the puerperal fever, and the

remark may be extended to other inflammatory affections, is to arrest the general excitement, and the topical inflammation; and of the arrestation of the former we judge by the decline of the fever, and of the latter by the cessation of pain. So long, therefore, as the stage of excitement exists, combinedly with local pain, so long may the use of the lancet be indicated; but if one bleeding checked both, it would be manifestly absurd to proceed further, and to stop short where it did not give relief, would be a weakness that might be followed by fatal consequences. When bleeding subdues the pain, and the pulse notwithstanding continues to be quick and the fever urgent, some latent inflammation may almost always be apprehended, and in such cases a repetition of the lancet will commonly be necessary; for unless the increased action of the heart, and the increased heat be removed, some deep visceral disorganization will mostly be effected, from the mere continuance of the general excitement.

It would appear in what has been called the hospital puerperal fever, which authors have deemed the most typhoid and malignant form of the disease, that as active a treatment is demanded as in any other modification; at least I shall now adduce some cases, and some communicated facts which may show how much that complaint is under the influence of depletion in the commencement.

Early on the 3d of October, 1818, Elizabeth Sergeant, a single woman, aged 22 years, was delivered of her first child. The labour lasted nine hours, and produced much apparent suffering. Her temper was particularly irritable, and about eleven o'clock at night the pulse was 110 in the minute; but though several smart rigors had previously occurred, she made no complaint, except of abdominal tenderness on pressure. At three the next morning, however, she had pain in the belly, which was continual from that time; and at eight, the pulse was 100 and strong, the skin moist, the tongue whitish and moist, the thirst great, the lochia perhaps rather sparing, and much pain existed on pressure in the abdomen, particularly in

the hypogastrium, attended with swelling and tension of the umbilical region. About thirty ounces of blood were drawn when it ceased to flow, and her lips became pale, yet she would not allow that the pain was much relieved. Five grains of calomel, with eight of the extract of colocynth, were administered, and as these had not operated at noon, about an ounce of castor oil was exhibited. At three o'clock in the afternoon no stool had occurred, and there was exquisite tenderness on pressure of the abdomen, especially of the right iliac region. The pulse was then 108, the tongue moist, and the skin hot and dry. The common cathartic enema was immediately injected, a large blister applied over the abdomen, and eighteen grains of the blue mercurial pill, with half a drachm of the compound powder of ipecacuan, were made into six pills, one of which was ordered every fourth hour, with a little of a sudorific mixture. By ten o'clock that night, the bowels had been very freely opened, and there was then no abdominal pain whatever; but she had displayed much irritation of temper, and used even violence to the nurse. The tongue and skin were both moist, and the pulse was about 136 in the minute.

On the 5th no pain existed, and she had slept tolerably. The tongue was moist, the skin dry, the pulse 120, and the belly much swollen. The blister had done its office well, the milk and lochia were secreted, and the bowels had only been once opened. She had saline and sudorific medicines, and castor oil when necessary, till the 7th, when she complained of general head-ache, and on the 8th, she became decidedly maniacal. The lochia continued to flow, but the milk was diminished. There was now neither pain of the head nor of the belly. The strait waistcoat was put on, a cold lotion applied to the head, and repeatedly small doses of the sulphate of magnesia given in order to move the bowels. She slept well, and on the morning of the 10th the face was suffused with an erysipelas, which had been gradually increasing for about two days previously. Two scruples of the cinchona were ordered every three hours, with a diet of broth, bread and milk. The

bowels continued very open under the use of the cinchona, the erysipelas began to subside on the 12th, and by the 15th the mind was perfectly distinct. In less than a month from her delivery she was enabled to leave the Institution quite well. The two most remarkable circumstances in this case were, the great relief which free purging afforded after very copious venesection, and the apparent translation of disease afterwards, first to the head, and then to the face. It is well known, that erysipelas and the puerperal fever often prevail at the same time; whenever this happens, more than ordinary attention should be paid even after the subsidence of both; and perhaps one of the best modes of guarding against visceral attacks of erysipelas, is to blister the surface, which was accordingly done towards the close of this case.

A. R. a married woman aged 26 years, was delivered of her second child on the 13th of October, about ten o'clock at night. During her pregnancy she had pain in her right flank and back. At eight o'clock on the evening of the 14th, the pain of the flank became more acute, and the pulse much quicker, being then 150, and perfectly distinct. Her bowels had been freely opened on the previous day by about an ounce of castor oil, and as she was then in a most profuse perspiration, it struck me, that a full anodyne might alleviate the pain, promote the perspiration, and thus carry off the excitement under which she laboured. But at seven o'clock the next morning, the pulse remained so high as 148, the pain was more diffused, the tongue very dry, and she obtained no sleep from the opiate. About twenty four ounces of blood were drawn, the crassamentum of which was much buffed; but no relief followed, and the tongue remained as dry as before, a circumstance which seemed to mark an unusual severity of attack. Three hours afterwards she was again bled *ad deliquium*, and about the same quantity of blood abstracted as before, which however was less buffed. The tongue became moistened from this venesection, yet the pain was not totally removed. A cathartic enema was immediately injected, one scruple of calomel

with three grains of opium exhibited and an aperient mixture of senna and salts was directed to be frequently repeated, till it should act liberally on the bowels. As the abdominal symptoms were still urgent, she was bled to about twelve ounces, five hours after the second operation, and twenty four leeches were applied to the abdomen, and a blister to the epigastrium. About ten o'clock at night, the pain had not quite subsided, but she bore pressure better, the pulse was 120, the tongue moist, and the skin cool. Another scruple of calomel was given with two grains of opium, a blister put to the epigastrium, and the purgative mixture was directed to be resumed four hours afterwards. At six o'clock on the following morning the pain and tenderness of the abdomen remained, though in a subdued degree. The pulse 138, the tongue moist, and she complained of head-ache. Two copious stools had been procured from the purgatives, but as it seemed most desirable to induce further evacuations, ten grains of calomel and the same quantity of jalap were exhibited, and the mixture ordered to be very frequently given, till copious motions should succeed. The abdomen was fomented, and twenty leeches were then applied over it, and also re-applied at one o'clock, with a blister to the sternum on account of the continuance of pain. At nine o'clock in the evening the pulse was 130 and very soft. She had pain in the belly as of cholic unaffected by breathing, was restless, and apparently much exhausted. Forty drops of laudanum were prescribed at nine o'clock, one grain of solid opium at eleven, and another four hours afterwards. She slept well and the next morning had no pain, breathed freely, lay in an easy posture, the pulse had fallen to 122, was fuller as well as stronger, and the bowels were opened, but she vomited her diet drink for the first time, the lochia were now suppressed, and the tongue was brown and dry. In the forenoon the pulse was once as low as 102, at mid-day it was 122, and at nine o'clock in the evening, it rose as high as 138, and was then strong and jerky. She had great pain in the back, shrunk much on the slightest pressure over the belly, and was

highly irritable. There had been repeated vomitings, and the tongue in consequence was moist. She was again bled nearly to faintness, a cathartic enema administered, a scruple of calomel prescribed with two grains and a half of opium, and a purgative mixture, which was to be repeatedly administered four hours afterwards till copious stools should be procured. The blood drawn was exceedingly buffered. It eased her, and she slept. But at seven o'clock on the morning of the 18th, she still shrunk on pressure, she had passed several copious stools involuntarily, and her countenance was anxious; but no vomiting had occurred from the time which she took the calomel and opium, and the pulse was only 118, strong and resisting. Throughout the day, she became extremely restless and irritable, and complained much of the blister; at six o'clock in the evening her pulse was exceedingly quick, and as she was still very restless, twenty drops of laudanum were given, which quieted her for about an hour, when she again became restless, and gasped as if for air. Her voice continued loud, and her movements strange and hurried up to nine o'clock, when she attempted to leap from the bed and expired.

The body was examined ten hours after death. About nine ounces of serous effusion was found in the abdomen, and a few bands of lymph united the hypogastric convolutions of the intestines. The bowels were empty and contracted, except that the commencing colon was distended by gas. A patch of purple congestion was discoverable here and there on the pertoneal and villous coats of the intestines. The spleen was unusually small but sound; the liver and kidneys were also in a natural state. The portion of the peritoneum which invests the uterus was inflamed, especially near the lateral vessels, and the exterior and the interior of the bladder was of a similar pink colour. Much organic disease existed in the rectum, which was thickened, rugose, very contracted, and green on the inside, with subjacent and injected vessels dimly seen through this green lining. This peculiarly coloured appearance was equally marked in the cæcum, and commencing colon, and most

probably extended throughout the whole colon, though a circumstance occurred to prevent us from ascertaining whether this was really the fact. In the chest, no defangement was visible, except the remains of previous disease, namely, the adhesion of the whole right lung to the surrounding parietes. The brain was perhaps firmer than natural, its larger vessels well emptied, but the choroid plexus, and the pia mater of the inferior surface of the cerebrum and cerebellum, especially of the latter were vividly red.

Besides the pain in the right flank which this patient stated to have subsisted during gestation, she also subsequently declared, that she had suffered during the whole of her pregnancy inconceivable pain "in the bottom of the back and in the inside." She only made this statement however at a late period of her disease, but it elucidates the morbid appearances of the rectum, and colon. This case was exceedingly embarrassing to me on the outset on account of the pain which existed before and during pregnancy; and though the organic disease discovered after death satisfied me, that no treatment could have availed, yet a mistake was committed, which requires to be pointed out for the sake of others. On the evening of the 14th of October the pain became more acute, and was attended by a marked acceleration of the pulse; but the skin was so moist, as to induce me to exhibit an opiate, under an impression that the fever might be carried off by perspiration. Instead of this procedure, she should have been bled without a moment's loss of time. In such a disease as the puerperal fever, the delay of a few hours in the beginning may make all the difference between failure and success; but as I fell myself into an error of this kind, it may serve to prove how much more easy it is to give directions to others than to follow them ourselves. If I had been aware of the existence of an organic disease in the rectum, I certainly would not have prescribed calomel at all, much less in such large doses, but respecting the operation of this medicine some remarks shall be made in the sequel. Considerable irritation occurred towards the

close, attended with very violent exertions of the museles ; and perhaps, as a last resouree, opium should have been given more freely, and physical force mildly applied to restrain the motions. Irritation and muscular exertion are frequently the immediate causes of death, in diseases where great exhaustion exists, and particularly if much blood had been previously lost ; and hence we often see after uterine hemorrhage the greatest danger result from the combination of irritation and exhaustion, and we find the greatest advantage from opium, and from keeping the body quiescent by every precaution. Now it is not impossible but the exhaustion and irritation which supervened in the last stage of this case may have been connected with the previous loss of blood, which was upwards of 80 ounces in four days ; though I cannot take upon me to say whether that exhaustion and irritation might have been removed by opium and mild restraint, and only mention the circumstance here to put others on the watch in future, if they should be similarly situated. Nothing is more painful to my feelings than the review of unfortunate cases, for I generally imagine that something might have been avoided or added for the better in treatment : yet it is our duty to publish such cases much more frequently than is done, since our recorded failures may serve to gaard others from the wreck which we ourselves have witnessed.

Sarah Rock, a single woman, aged 19 years, was delivered of her first child on the 21st of October, after a labour in which she rather suffered from the resistance of the soft parts. About nine o'elook on the morning of the 23d she was attacked by a rigor of an hour's duration, succeeded by some pain of the head and loins, with a soft, weak pulse, upwards of 120 in the minute. She took an ounce of castor oil. The head ache and lumber pain disappeared, but she had pain in the region of the uterus, especially on pressure. Venesection was ordered at noon. When about ten ounces had escaped, the blood ceased to flow, and the pain had totally departed. A purgative enema was prescribed, and also another ounce of castor oil. At

six o'clock in the evening she was again bled *ad deliquium*, on account of abdominal pain and tenderness, with a return of the head-ache. The pulse continued to be exceedingly weak, and 138 in the minute, she lost the head-ache after the second bleeding, though she still had pain on pressure in the hypogastric region. Four copious, fetid, and somewhat solid stools were passed, of a pretty natural colour. The mixture of salts and senna was ordered to be frequently given, till it should operate. But as at ten o'clock at night no further evacuation had been procured, and as symptoms of abdominal inflammation existed, half an ounce of castor oil was given every hour, that an action on the intestines might be promptly and plentifully established. Two hours after midnight the symptoms remaining the same, she was again bled freely and to fainting, took two grains of opium, and almost immediately afterwards, she displayed some delirium, which however was soon removed by sound sleep. At eleven o'clock the next day, the pulse was only 90, the skin warm and moist, and the bowels open. She had no pain of the abdomen on forcible pressure, lay upon her side, breathed easily, and had a tranquil expression of the countenance. She slept well the next night, and the pulse was only 86 on the succeeding morning, and she had no pain whatever. From the 25th to the 29th of October, the symptoms remained highly favourable; but on the latter day she had headache, quick pulse and quick breathing, for which an enema, some castor oil, and an infusion of salts and senna were prescribed; but though these moved her bowels, the head-ache continued to be harrassing, and she was therefore again bled *ad deliquium*, and her bowels were freely opened. She took two grains of opium at five o'clock on the morning of the 30th, slept soundly afterwards, and from that period recovered apaeo.

This case gave me considerable anxiety, because it commenced and continued with a quick, weak, and soft pulse, which is always an unpleasant attendant; since combined weakness, softness, and quickness of the pulse, show an unusual relaxation of habit, and in all inflammatory diseases is much more

to be dreaded than a strong resisting pulse in the commencement. The first bleeding was employed about three hours after the commencement of the disease, the second three hours after the first, and the third eleven hours after the second; so that in about fourteen hours, faintness was thrice induced; and she had lost about fifty ounces of blood, and the bowels had been freely opened. The fourth bleeding, was five days after the third, and removed a head-ache and general excitement which probably threatened a relapse of the original disease, at least I have seen such an excitement, when allowed to pass on, re-produce all the symptoms of abdominal inflammation at last, though at its onset it was unconnected with inflammation. Another but much milder case occurred nearly about the same period, but in it bleeding was only once necessary, with the co-operation of purgatives. Independently of these cases of the puerperal fever, I have seen four in private practice, in the first of which, bleeding was four times used to the total amount of about fifty ounces, in the second, thrice to a similar quantity, in the third, twice to the total amount of about thirty ounces, and in the fourth, between twenty and thirty ounces of blood were abstracted at once; but in all these four cases, purgatives were liberally employed in the beginning, and in two of them leeches applied to relieve local symptoms, and also opiates administered to allay general irritation. From these facts, then, it appears that even in London where child-bed fevers are said to be more fatal than in the country, only one case in ten has terminated mortally under the depletory practice: and as that case was combined with an old organic disease, one would perhaps be led to hope, that the mortality in general might not be more, where the disease is fairly met and encountered from the beginning; for after all the general result will in a great measure depend upon this circumstance, and it ought again and again to be reiterated, that unless the disease be early met, the mortality must be much greater.

The cases of the hospital puerperal fever which have been detailed, and which similar ones preceded and followed, were

considered as contagious by a practitioner of great talent and experience, who was attached to the Institution where they appeared ; and in St. James's Infirmary, a similar disease occurred about the same time, which was successfully treated by similar means. From what I have myself observed of the hospital puerperal fever, it would appear to me as controllable as any other modification of the disease when accompanied with general excitement and topical inflammation. In confirmation too of this opinion Dr. Gooch, whose experience in the hospital puerperal fever has been so extensive, recently told me, that though he had seen more formidable cases in hospital than in private practice, yet even in the former he had lost very few. From all he has seen of the disease, he has been led to the conclusion, that the only effectual remedies are bleeding and purging very boldly and very early employed : but he considers, that these measures used moderately at this period do little or no good, while used late they do harm, especially bleeding ; and he has observed the curable stage, in many instances to pass over so rapidly, that unless the first approaches of the disease be detected, cases will now and then be lost, which might have otherwise been saved.

In his Lectures, when speaking of the puerperal fever, the late Dr. William Hunter used to say—" Treat them in what manner you will, at least three out of four will die. Upon examining the uterus, the viscera, and every other part are found to be inflamed. There is a quantity of purulent matter in the cavity of the abdomen, and the intestines are all glued together. The disease rages so violently, that every process of nature is set aside ; and there is no secretion of milk in the breast. From what I have seen at different places, and in my private practice, this fever often happens ; and yet when it does, it is the only ease in midwifery, in which so little is to be done. I would observe then, first, that in the hospital I have seen a great many of these, and particularly in one year, when it was so remarkably prevalent there. It was so bad, that not only every gentleman belonging to the hospital, but

all our friends in town had a consultation to think whether it was not better to shut up the house. In two months thirty-two patients had the fever, and only one of them recovered. We tried various methods. One woman we took from the beginning and bled her, and she died. To another, we gave cooling medicines, and she died. To a third we gave warm medicines such as confess, cardiac, cordial julep, mithridate, &c. and she died. We tried these to save their lives, but every thing failed."

If the puerperal fever were now treated in the same vague way as in the above inflammatory modifications, it would be equally fatal in our experience as it was in that of Dr. William Hunter; and as he was an individual of transcendent talent, it is gratifying to reflect, that the advanced state of medical science has enabled us to succeed in a point where even his genius failed. In conversing upon the subject of the puerperal fever, I have occasionally known practitioners to assert in general terms the utter inefficiency of bleeding. But the moment that I began to enter into particulars, it was discoverable, that with them bleeding was a term to which they attached a very different meaning from myself; and that, like Dr. Leake, they talked of having bled copiously when a few ounces of blood only were drawn, without any strict regard to the stage of the disease, or to the effect produced. It is to be regretted, in the records which we possess on febrile diseases, that authors have seldom stated with minuteness how much and how often blood had been drawn, nor given an account of all the symptoms present at each operation; for if we had been possessed of this information, we should have been enabled to discover why some failed and others succeeded, and thus to reconcile those discrepancies of opinion which to some have seemed inexplicable. Were it possible, that the leading physicians in Europe could at this moment declare bleeding to be prejudicial in the beginning of the puerperal fever, attended with general excitement, I would enter my firm protest against the declaration; because whatever respect I might

feel for such an united authority, it could not, and should not prevail for an instant against the plain evidence of my senses. But if any one were to affirm that bleeding was inadmissible, when the general collapse is fully established in the puerperal fever, then I would cordially join with him in the opinion, nay go even further, and assert the same thing of the inflammatory form of typhus, and indeed of every other inflammatory disease.

In the treatment of the puerperal fever it will sometimes be found a point of great difficulty to determine with precision whether a vein ought to be opened or not when the practitioner is consulted rather late than early in the attack; for though it has been tried in the preceding pages to mark the stage of excitement from that of collapse, yet the shades of difference are not always so distinct as to be clearly perceptible; and as peritoneal inflammation and pyrexia occurring in the child bed state often remarkably depress the vital powers in the acme of their intensity, we should be cautious not to deceive ourselves by affixing too narrow a limit between the stages. On the other hand, especially when we have previously bled, we should not carry our prejudice in favor of the lancet so far as to induce us to employ it when the universal collapse has obviously succeeded the excitement; since such tenacity could only tend at once to sink the system under the shock of depletion, or at least to increase a general irritation which would accelerate the mortal issue of the case. Much must at all times be left to the discretion of practitioners, since it is impossible to embody in books all that can be observed at the bed-side, respecting those nice distinctions of symptoms upon which, a good or bad practice may be founded; and even if any one could embody all that he has himself impartially observed, still there is often something in the mind of others which, unconsciously to themselves gives an accustomed and a favorite coloring to most of their impressions.

When from a cautious survey of all the symptoms there are grounds to believe, that the stage of excitement is past, or upon

the point of declination, every thought of general venesection ought to be abandoned ; and if any measures can then save the life of the patient, which indeed is most doubtful, laxatives and opiates are by far the most likely, together with light nutritious food exhibited in small quantities at once. But it must be always recollected, whenever a highly inflammatory disease has unimpededly run its course, that the vital organs are generally somewhere wrecked towards its conclusion ; so that if it were possible, at that advanced period, to abstract whatever remains of fever may be present, the patient would most frequently die from the organic mischief previously induced.— Yet now and then a remarkable recovery does take place from the last stage of the puerperal fever, even when no proper measures had been used in the first. An instance of this kind once fell under my observation, in which an opening took place spontaneously at the navel, after the patient had struggled several days in extreme irritation and exhaustion ; and the turbid serum and coagulable flakes, effusively into the abdomen from inflammation, were evacuated at this opening, which finally closed, and the long continued hectic ceasing, the patient got quite well at last.

But there are instances of exceeding delicacy where depletion has been employed in the first stages, and where it is difficult to say in the last whether the danger depends upon derangement of structure and function, or upon mere nervous irritation and weakness ; and in all of such doubtful cases, the best thing that can be done is to attempt to allay the irritation by full doses of opium, and to remove the weakness by light nutriment, since irritation and exhaustion may sometimes be the causes of death. Once I was consulted for a lady deemed to be dying of the puerperal fever, after copious venesection and purging had been most judiciously directed in the outset. When I saw her the face was ghastly pale, the pulse small and tremulously rapid, she gasped anxiously for air, and shrieked out now and then from the pain of a blister which had been previously applied. Under some faint expectation that irrita-

tion might be the principal cause of her present suffering, the blister was removed, and a large opiate administered: she soon fell into a quiet sleep, awoke some hours afterwards with a soft slow pulse, a warm moist skin, and from that time recovered rapidly.

In the beginning of the puerperal fever, after evacuations, blisters have often an excellent effect; but in the advanced stages, the irritation which they produce may be dangerous, as I have more than once witnessed. Throughout the stage of excitement the patient should be lightly covered; and the room well but cautiously ventilated, the temperature of which should then rarely exceed 60° of Fahrenheit; but in the last stage, when the animal heat, like the powers of life, suffers a diminution, the covering of the patient and temperature of the room should be warmer; while light and noise ought to be excluded as much as possible, for even the burning of a candle or the ticking of a clock, at such critical moments, might prevent sleep, or prove the cause of additional irritation.— When the abdominal inflammation is of the acute kind, it generally proceeds with great rapidity, so that in these cases, a few hours lost in the commencement may be fatal to the patient; but when the force of such an inflammation has been broken in the beginning, and yet not subdued, it may still permit of further venesection, or at all events leeches may be applied to the belly, which are often excellent auxiliaries to general depletion. When the abdominal inflammation puts on the sub-acute character, it is more slow and protracted, and of course admits of bleeding at a later period than the former; but in both laxatives or purgatives are always indicated so long as the excitement remains, and where there is room for doubt respecting bleeding, none in general may be entertained as to the propriety of their administration, particularly the former.

My correspondence and conversations with practical men have been extensive in regard to the puerperal fever, and, as I before hinted, those who have been most successful in the treatment of the disease trust chiefly to bleeding and purging in

the early stages, but though they thus remarkably coincide in one great principle, yet there is a difference amongst them.-- Some practitioners are decidedly in favour of calomel and similar purgatives of the drastic kind, whilst others are decidedly against these, preferring milder aperients, but especially castor oil, which they conceive to be better, inasmuch as it produces full evacuations without irritation. Perhaps an impartial and experienced critic might be inclined to think, that it was of little consequence what purgatives were ordered, provided an action was excited and kept up upon the bowels for a sufficient length of time ; and yet as most purgative medicines have a peculiar as well as a common effect, this discrepancy of opinion may be more worthy of notice than might at first sight appear. In regard to castor oil, it is usually thought that it merely evacuates what may be lodged in the bowels, without eliciting any secretion from their villous surface : but, when good, I have generally observed, that it occasions as copious stools as almost any other aperient, and with much less irritation than most ; and these two circumstances render it a most desirable drug in those abdominal inflammations where the intestines themselves are affected, and where it is a primary object to open the bowels, with the least possible irritation. In the puerperal fever, however, it generally happens, that the bowels have been more or less neglected before parturition, so that scybala are not only retained in them, but their secretions are also morbid. Under such circumstances, one or two full doses of calomel will almost always be highly efficacious, and in most of those cases which have yielded with the greatest rapidity in my practice, this plan was pursued ; the bowels having been kept regularly open afterwards by castor oil, or some similar aperient, until the stools became perfectly natural. If the laxative plan be omitted too soon, even when the abdominal inflammation has been subdued, the patients will mostly be liable to internal or external suppurations accompanied with pyrexia, and under these they may slowly sink, after the complete reduction of the original disease.

From Dr. Joseph Clarke's letter it will be seen, that Dr. Labatt, the present Master of the Lying-in-Hospital at Dublin, has sometimes found large doses of calomel, a scruple or half a drachm, produce alarming weakness, a tympanitic state of the abdomen, with vomiting and great irritability of stomach; and as I have never myself witnessed such effects from such doses in the puerperal fever, I have been the more desirous to give them publicity, lest any of the results of my own experience, in this disease, should be the means of misleading others. In the puerperal epidemic, which prevailed in the North of England, the doses of calomel were gradually increased from the ordinary to the extraordinary ones above mentioned, because nothing less would move the bowels effectually in the onset; and as the disease was attended with a very high degree of febrile excitement when the calomel was thus administered, the most salutary effects invariably resulted. But since then I have met with some instances, where the excitement was less, in which ordinary operated better than extraordinary doses of calomel; so varied are the effects of this medicine by the circumstances under which it is given. In the fevers of warm climates the excitement generally runs much higher than in those of our country, and it is on this account, that we find such extraordinary quantities of calomel given not only without prejudice, but with positive advantage. Yet whenever the action of the heart, and the animal heat approach towards their natural state, then large doses of calomel may be highly injurious, from the great and universal relaxation which they are apt to induce in that condition; nay there may be certain states of the body, even in fever, where a similar relaxation is induced by large doses of calomel, and from what Dr. Labatt has mentioned, it would be desirable to ascertain what those states are, which modify its influence so remarkably. In the exhibition of calomel, as in the employment of blood-letting, it is to the effect produced that we must chiefly look, and if a desired effect can be produced by an ordinary measure, it is surely all the better; but where the circumstances are so unusually for-

midable as to render an ordinary measure of no avail, then we must deviate from the common routine, and be bold in proportion to the urgency of the case.

The best way to ensure the operation of purgatives in the puerperal fever is to bleed freely at first; and though having great faith in the anti-inflammatory powers of calomel as an alterative, yet in this rapid disease it is chiefly its purgative power which I would regard. In a very large majority of cases, the stools are rendered morbid from the primary seizure of the puerperal fever, and in such calomel should always be premised; but in those instances, which perhaps are exceedingly few, where the stools are natural from the onset, probably castor oil is in general preferable. No purgative changes the appearance of the stools more than calomel, and I believe, that many mistakes are committed from prescribing this preparation in order to render the evacuations natural; when in fact their morbid state, if not actually occasioned in the first instance, is at least afterwards maintained by the unnecessarily repeated exhibition of this medicine. It is oversights of this kind which often bring the best agents into an unmerited disrepute; and it cannot be denied, where calomel is improperly given, that it may sometimes produce an irritation and exhaustion fatal to the patient. My principle in the treatment of highly acute diseases is, to make a decided impression on them in the onset by powerful measures, and to treat them mildly towards the close; but between the onset and the close an intermediate state of disease exists, which requires a treatment intermediate between those adapted to the first and last stage.

Erasistratus confidently maintained, that most purgatives altered the nature and colour of the alvine evacuations; and though this remarkable fact has been disregarded in modern publications, where purgatives are constantly recommended, yet it is familiar even to nurses. Calomel often changes the stools to a greenish, or dark brown colour, and in fever not unfrequently produces those glary, oily dijections, which some have erroneously supposed to be pathognomonic of hydroce-

phalus when they occur in children; indeed the nature and colour of the feces are so varied by calomel, as to render it highly probable, that some portion of it is decomposed in the bowels, either by the bile, or by other secreted fluids. The sulphate of magnesia tends to darken the stools, as likewise all prescriptions which contain sulphur: the infusion of senna, too, has a similar effect, and even aloes when given in solution; but rhubarb renders the stools of a deeper red than natural, and castor oil generally shows them as they really are, while magnesia makes them lighter. These few hints are only given in illustration of the doctrine, which might be supported by many others; and if it were necessary, it also might be easily proved, that drinks and diets contribute in like manner to give peculiar tinges to the stools, which, even when passed in a natural state, are darkened by exposure to the air. Now that purgative medicines are so much resorted to in almost all diseases, whether acute or chronic, these suggestions are only thrown out to caution the inexperienced against their indiscriminate continuance: for it has almost become an admitted principle in therapeutics, that we should continue to purge less or more while the stools remain unnatural; and yet it will be readily understood how erroneous that principle may be, since the very medicines exhibited may be the cause of the morbid evacuations. At the same time, it should not be concealed from the student, that the secretions, especially those of the liver, and villous coat of the bowels, are almost always vitiated by febrile attacks. Purgatives are therefore requisite not only to correct these vitiated secretions, but also to operate locally and generally as evacuants, particularly where visceral inflammation exists; and if there be one disease more than another where they are indispensably necessary and highly useful, it is unquestionably the puerperal fever, in which they justly rank next to venesection. Yet from what has been said the practitioner will perceive the propriety of not pushing the purgative plan too far when the symptoms have been overcome, from the mere unnatural appearance of the stools; but

on the contrary, he will then select laxatives which while they keep the bowels regular, will soon enable him to ascertain whether the morbid stools have been the product of the disease, or of the medicines previously given.

It will have been noticed, that opium was given in some cases of the puerperal fever, either to lessen the pain while the abdominal inflammation existed, or to allay irritation when that inflammation was subdued ; but as the administration of opium, during the presence of inflammation, is condemned both in the schools and systematic works, it may be necessary to say a few words on the subject. Having early imbibed the common prejudice against opium, accidental circumstances chiefly led me to doubt the sweeping dogmas respecting its being prejudicial in visceral inflammations ; and it has been by very gradual steps, that I have arrived at any thing like its true operation in such affections, seated in the abdominal cavity. Opium when given in health constipates the bowels, but this is so far from being the case in gastritis and enteritis, that it tends to assist the action of purgatives ; and when exhibited in those complaints, in conjunction with proper depletion, it may fairly be accounted one of the best remedies. Yet as I have so often given it combined with calomel, it may be objected, that the result rather depended upon the combination than upon the opium alone. In some urgent cases, however, I have been compelled, from the necessity of attempting immediate relief, to trust to opium merely, when previous bleeding and purging had produced little or no alleviation of the symptoms ; and in these the efficacy of opium was so remarkably great, as to embolden and justify me to give it in similar cases when the ordinary measures in like manner had previously failed. Even here it may perhaps be contended, that as bleeding and purging had been in prior employment, the agency of the opium might be reasonably questioned ; but as a satisfactory answer to this natural scepticism, I can affirm that opium has been made the principal remedy, where, from a sort of necessity, the lancet and active purgatives could not be used. Since my appointment to the Fever Institution of London, it has

sometimes happened that patients, while just convalescent from a protracted disease, and while extremely weak and emaciated, were attacked with all the symptoms of gastritis or enteritis; and as the peculiarity of their situation deterred me from blood-letting, previous facts induced me to trust to very early and full doses of opium, in conjunction with blisters, and the mildest laxative. Where this treatment has been promptly applied it has in general given the most perfect relief. Sometimes sixty drops of the tincture of opium have alone answered the purpose, but sometimes twice that quantity was exhibited at once, and a smaller dose repeated soon afterwards, if the pain were not relieved by the first; and as the test of its utility has been its removing the pain, it was always re-administered, at proper intervals, until the pain entirely abated. When the stomach has been very irritable, solid opium was prescribed in small pills, instead of the tincture, which nevertheless is generally retained except in extreme cases, and which operates more rapidly than the solid opium, though a combination of both often answers exceedingly well. In cases of this kind, however, the opium was certainly exhibited under a state highly favorable for its efficacy, as they had only existed a short period; and however great the general relaxation might be from the previous disease, there was a nervous irritation also existing, which made opium more peculiarly applicable. Patients are often brought into the Fever Institution in the last stage of fevers, proceeding from various causes, in which general depletion is entirely out of the question, from the excessive prostration of the general powers; and even in some of these cases, combined with gastritis or enteritis, large doses of opium, with blisters and laxatives, have succeeded when the ordinary means must have been wholly unavailable. Yet in protracted cases of fever combined with abdominal inflammation, ulceration of the villous coat of the bowels is by no means uncommon, not to mention other organic derangements, and therefore the general chances are greatly against opium, or indeed against any other mean then administered.

The two most remarkable effects of full doses of opium in gastritis and enteritis are the relief to the pain and the reduction of the pulse ; so that the patient often falls asleep shortly after their exhibition, and the pulse which had been previously small and quick, will become full and slow. Pain is a direct irritant to the heart and thence to the arteries, and in many cases thus prolongs inflammation. In external burns, where pain is the most urgent symptom, those applications are the best which relieve it soonest, and hence the efficacy of turpentine. In gastritis and enteritis, opium may be said to be applied almost directly to the part, and this may be one reason for its superior efficacy in them. In peritonitis strictly so called, where the pain and tenderness are diffused, it is by no means so useful, its benefit being most conspicuous where the pain and tenderness are *circumscribed*, as in enteritis, gastritis, or hysteritis. Yet in the puerperal fever, in which the peritoneum chiefly sustains the intensity of the inflammation, opium may often be given with considerable advantage, where the local pain and constitutional irritation are excessive ; though in that stage of excitement it must not for a moment be forgotten, that bleeding and purging are the principal measures. When the stage of collapse approaches, as bleeding is highly prejudicial, opium may perhaps be accounted the primary measure, since the allaying of irritation is then the principal object. Whenever opium is administered in any species of abdominal inflammation, the dose should be large, for a small dose often stimulates, whereas a large one is a direct sedative ; and if I had been sooner aware of this fact, it would have enabled me to avoid some errors into which I formerly fell, in the exhibition and estimation of this peculiar drug. Between that state of the nervous system called irritation, and that state of the vascular system called inflammation, there is a most intimate relation ; so that in many instances when we promptly allay irritation we prevent an inflammation, which would have otherwise have occurred ; and even when inflammation exists in combination with much pain, we often find, that by allaying

the pain we lessen or remove the inflammation. This acknowledged relation between nervous irritation and vascular inflammation has long been acted upon by surgeons, who use opium more judiciously than physicians; and indeed not only much fewer articles are used in surgery than in medicine, but they are far more precisely applied in the former, both of which things show the higher advancement of that department of medical science.

It is long since Heberden maintained the utility of opium in enteritis, and Clark in the gastritis of warm climates; and an intimate friend has long resorted to its aid in these complaints, conjointly with the usual evacuations. But if any one were to generalize the idea, and give opium similarly in inflammation of the lungs and brain, he would soon bring discredit upon the practice; for exhibited alone it is prejudicial in these diseases, as digitalis, to illustrate a converse proposition, is useful in inflammation of the lungs and brain, but of no benefit in abdominal inflammations. These curious circumstances we cannot explain, but for practical purposes it is enough to be assured of their truth. Probably opium has fallen into disrepute in gastritis and enteritis, because it has not generally been tried in sufficient quantities, and also because it is known to restrain the action of the bowels in health; but as I hinted in the essay on typhus, the bowels sometimes cannot be moved when they are inflamed until opium be given, a fact of which I have had repeated proofs in the course of my practice. Perhaps nothing has more retarded our advancement in the science of therapeutics than pre-supposing, that the operations of medicines are always similar in disease and in health. If opportunities should occur, a few years hence it is my design to draw the attention of the faculty to a series of facts which will show, that the operations of the same and different medicines are exceedingly varied by the states of the body under which they are administered; and upon this principle it is hoped, that our *materia medica* may be made to assume the form of a science, by deducing general

principles from an ample collection of particulars, respecting the modus operandi of the most important agents in common use.

Bleeding and purging, however generally successful, will not cure every case of the puerperal fever, and when they cannot cure it in the beginning, no other measures can, so far as my own information extends. But as the oil of turpentine has been brought into notice by Dr. Brenan, and as Dr. Joseph Clarke speaks highly of it in the last stage of that disease, it is only right, that its influence should be further investigated, when proper occasions occur; for however prone some physicians in Ireland may be to vaunt and to generalize its effects, and however opposed its exhibition to our admitted theories of inflammation, still if experience has proved its utility under certain contingencies, we must not allow our pre-conceptions to retard its introduction. The present age is one of independent thinking amongst a large proportion of medical practitioners, and from this spirit has sprung the desire of some to try new remedies; but at the same time it ought not to be forgotten, that many of our old ones required to be improved, by rendering their application more precise and particular.

Five years have now elapsed since the first edition of this work was published, and it has been to me highly satisfactory to find, that the pathological and therapeutical principles then exhibited, have met with the strongest confirmation from the observation and experience of many practical men; but nothing has given me greater pleasure, than the excellent work which subsequently proceeded from the pen of Mr. Hey, junior, and which has not been more particularly noticed in these pages, merely because I wish it to be attentively perused by all those concerned in the practice of midwifery. Still however, before concluding the subject of this essay, I must beg leave distinctly to state, that the treatment recommended is only meant as strictly applicable in all its parts to *the puerperal fever*, in a limited sense; for if we were to inquire of different men what they mean by the term puerperal fever, we should probably have

many definitions attached to it of various import; and it is much to be regretted, that both in books and in lectures much vagueness still exists for the want of a precise meaning to the general term puerperal fever. Were any one, then, to ask, what is precisely signified in the preceding pages by the puerperal fever, I should be disposed to answer—it is an affection of child-bed, in which there is a general disturbance of the functions attended by an increase of the animal heat, an acceleration of the pulse, and evident or obscure symptoms of abdominal inflammation; for I will confess, that I cannot frame any other definition which will justly comprehend those forms of child-bed disease which I have described, or most of those which I find specifically described by others, under the term puerperal fever. But it must be obvious, that the above definition does not embrace all the modifications which fever assumes in the child-bed state, for though, when any shock occurs, the abdominal viscera are by far the most frequently affected, yet other parts may be simultaneously, or separately inflamed; and indeed a fever may occur in child-bed where the blood is so equally distributed as to make it wholly unconnected with inflammation, a general disturbance of the functions, an increase of heat, an acceleration of the pulse, and a change in the secretions being then its leading signs. The doctrine of predispositions is one of peculiar interest to investigate, inasmuch as it has hitherto been greatly neglected. If a number of women in child-bed, and the remark is applicable to other states, be exposed to any cause that excites the system into fever, that part will suffer most which had previously been in the most weak condition; and hence in one the brain or spinal cord, in another the lungs or liver may be inflamed, and hence too the frequent occurrence of inflammation in the peritoneum. We want, therefore, a more enlarged classification of the febrile diseases of child-bed than has yet been given, though for practical purposes all those which are combined with inflammation may be reduced within narrow bounds. Because whether the inflammation be seated in the abdomen, chest, head, or any other part, and how much soever

its character may be varied by the tissue attacked, still it is inflammation which we have to encounter, and therefore the principles of treatment are similar; and as for that form of fever which is simple on account of the equal distribution of blood, we have but so to control the excitement by evacuations and regimen as to prevent it from ultimately producing mischief in any of the internal viscera which might be latently predisposed to disease. Yet independently of these, there is a peculiar complaint of child-bed which has not been distinguished by any author with whom I am acquainted, and as I suspect that it has sometimes been confounded in practice with the ordinary puerperal affections, it may not be useless concisely to allude to it here.

This peculiar affection of child-bed is ushered in either by sensations of chilliness, or by paleness and oppression, without such sensations: but in both cases the vital powers are so prostrate, that no regular re-action takes place as in common fevers; so that the surface remains cool throughout, or there are merely short, partial, and irregular flushes of heat. The shock in some instances is so great that the secretions are all suddenly suspended, and the patient sinks with rapidity; but in others the secretions are merely diminished, and the patient lingers a few days. From the first, more complaint is made of exhaustion than of any thing else, and there is such a striking depression in the countenance as to excite serious alarm. The face, lips, and whole surface are paler than natural, and the pulse is always weak, if not irregular. Sometimes there is a limited pain in the abdomen, sometimes not, and the same may be asserted of the head and chest: but the breathing is mostly impeded and oppressed, and one of the earliest and most marked symptoms is prostration of the appetite. Before death, gangrenous or livid spots are apt to appear on the extremities, and the brain is embarrassed in some instances, but in others the mind is clear to the last. In such cases, dissection does not reveal, so far as my examinations have extended, any of the usual remains of inflammation, that is to say there

are no adhesions, no effusion of coagulable lymph, no formation of pus, no internal gangrene from arterial fulness; and the only morbid appearances have been, an unusual accumulation of blood in some part of the venous system, without any of those vermillion tints of the capillary arteries, which denote the previous existence of inflammation. From symptoms and dissections, then, this form of puerperal disease would appear to belong to what I have elsewhere denominated the congestive variety of fever; but as I have only met with an instance of it now and then in the child bed state, my observations are hardly sufficient for the ascertainment of its true pathology. The first shock seems to be communicated to the nervous system, a reduction of the animal heat immediately follows, the blood consequently retires into the deeper seated veins, and thence is perhaps at first returned superabundantly upon the heart, which is so remarkably oppressed in its action as to render it highly probable, that the accumulation of blood about the right ventricle and large vessels finally retards the flow of venous blood from the other viscera. In the most violent modifications of this disease, if a vein be opened, little or no blood will issue from the puncture; and in the less violent, what blood does issue sometimes remains a fluid gore in the vessel, or exhibits a gelatinous sort of opaque film on the loose dark crassamentum. This kind of puerperal disease is probably rare compared with the others, as I have seen only a few cases of it myself, and, with the exception of two friends, have not known any practitioner who has seen many; but all who have witnessed it, and my experience fully accords with theirs, have found it by far the most formidable of those acute diseases which attack after delivery, very few patients having recovered under any treatment. Perhaps it may be said, by those who are influenced rather by names than by things that this must be the low child-bed fever described so well by the late Dr. John Clarke; but in this disease, there is no re-action, and therefore fever, in the ordinary acceptation of that word, is absent; whereas in the affection, which Dr. John Clarke has

described, the re-action was early and perfectly developed. Besides the whole progress of the symptoms in the low child-bed fever, and the dissections after death clearly showed, that it was decidedly an inflammatory affection, the intenseness of which was the cause of the apparent oppression; but in the disease in question a state the very reverse of inflammation ushers in and accompanies the disease, for so far from pyrexia being present, there is a deficiency of the animal heat.

In this peculiar disease of child-bed, nothing can be done for the patient unless she be very early seen, and even then a cautious prognosis must be given, as the danger is imminent. An excellent practitioner once confessed to me, that he had never saved a patient in this complaint, and another acknowledged, that the mortality had been great, though he had used bleeding, purging, and all the means usually resorted to for relief in acute diseases. From these facts it would seem that the congestive forms of fever in child-bed were more perilous, than those which occur under ordinary states of the system; and this may probably depend in some measure upon the exhaustion, which is sometimes super-added by the previous throes of parturition. The treatment of this disease must be regulated in the first instance by the constitutional powers of the patient, by the state of the animal heat, and by the apparent degree of venous pressure existing in some of the viscera. When a naturally feeble, or an exhausted subject is attacked, much more care will be required, especially in the use of evacuations, than in one whose general health and muscular tone had been good and unimpaired prior to the seizure; and where there is so great a deficiency of the animal heat, that the whole surface feels cold to the touch, the practitioner must not be induced to use the lancet until some means be premised to restore the temperature, otherwise the patient may at once sink under the loss of blood. When the nervous system has sustained some great shock from an accident, the skin becomes universally cold, the blood retires from the surface into the interior, and the heart's action is extremely oppressed. Under

such a state of things, it is an admitted principle in surgery not to bleed immediately, and indeed when it is done, death is often the direct consequence. Now in the most severe form of the disease under discussion, the constitution is almost in a state similar to that which supervenes a serious accident; for the nervous system has sustained an universal shock, the blood has retired from the surface, and the heart's action is oppressed. Under such a combination of symptoms from an accident, the best surgeons held it as a maxim not to bleed, and indeed they carry this doctrine so far, as to declare, that the lancet should not be used till re-action, or in other words till febrile excitement, shall take place. But though this doctrine be excellent and admirable, in those accidents where the vital powers are not so much overwhelmed as to prevent them from rallying into re-action, yet it would lead and has lead to great practical errors, when received as a rule from which there ought to be no exception; for it sometimes happens in great shocks from accidents, that the patient dies before any signs of re-action have appeared, and in like manner the same thing happens in those congestive diseases, such as that in question, which proceed from great and general shocks. As this diminished energy, then, of the nervous system, this preternatural reduction of animal heat, and this engorged state of the internal veins cannot continue to exist beyond a certain time without the greatest danger, or without destruction to the patient, it is the business of the practitioner to create re-action, which as it cannot be naturally must be artificially brought about, because it is the cure of this peculiar state.

If possible, the patient should be at once immersed in a bath at least 100° of Fahrenheit's scale, and strongly impregnated with salt. She should remain in it till the surface become warm, and when removed from it, the skin having been well dried and rubbed with warm flannels, she should be laid between blankets, and drink warm fluids, while bottles of warm water ought to be put to the feet, and a large bladder of warm

water to the region of the stomach. But where the ordinary bath cannot be prepared with sufficient expedition, a vapour one may be substituted, and where that cannot be had, the other auxiliary means just mentioned must alone be employed, for the purpose of raising the temperature of the surface.—When the shock communicated to the nervous system is extremely great, it is better, as before observed, to defer blood-letting until the coldness of the skin has been in some measure removed, and even then, in venturing to open a vein, it will sometimes be expedient to administer internally a diffusible stimulant, such as æther, in order to excite the vis insita at the same time. In extreme cases, the blood only trickles from the orifice at first, but where the operation does good, the heart gradually regains its force, and the pulse becomes free, while the blood at last gushes out in a full stream; and in those instances where the heart, instead of regaining, loses power, and grows weaker in its action, the arm should be immediately bound up, because continuing to abstract blood in that case might stop the circulation altogether. In short, blood letting will be either beneficial or the contrary, according as it raises or sinks the heart's action; and this is the criterion, by which the practitioner must be guided in every modification of congestive disease. In this, and in all similar complaints, venesection must never be carried to syncope, for it must be recollectcd, that the object of bleeding here is to unload the venous system, and to bring the heart fairly into play; and these ends being once accomplished, it would be bad practice to abstract more blood, which could only so weaken the heart as perhaps to make it unable to maintain the balance of the venous and arterial systems. On the contrary, in inflammatory diseases, where the heart's action is preternaturally increased, we bleed for the purpose of reducing that action, and therefore we may often proceed advantageously in the operation till faintness is about to supervene; but even in such examples, especially where much blood has been drawn, we should always make a point of watching the

very first indications of approaching faintness, that the patient may be laid flat down at once, and all motion restrained ; for I do believe, that for want of such precautions, blood-letting, even in inflammatory diseases, has now and then led to a fatal result, particularly in young children, who much more readily than adults may be lost in syncope. In fact, young children should scarcely ever be bled to syncope, since in them it may sometimes lead to mortal convulsions.

But, to return to the consideration of this congestive disease of child bed, it ought to be remarked, that venesection must be still more guardedly employed, in subjects who are constitutionally weak than in those who have been previously strong ; and in both all idea of the operation must be abandoned unless in the very onset of the attack, where the congestion is apparently so great as to be threatening the destruction of some vital organ, and bearing down by its pressure the general powers of the body. In those cases where the hot-bath and blood-letting answer the best purpose, the re-action follows without the necessity of any other measure ; and when that re-action is once established, the disease having assumed a new character, must be treated as simple or inflammatory fever, according to its symptoms. But in many instances of this congestive complaint of child-bed, these means will only have a partial effect, or fail entirely ; and in such the measures upon which I have most reliance, in conjunction with blisters, are calomel, opium, and camphor given in repeated doses, as directed in the essay on typhus, till the skin shall become warm and moist. In some examples of congestive disease, not occurring in the child-bed state, I have seen beneficial effects from emetics ; but not having yet ascertained the precise states under which they are indicated or contra-indicated, I can only mention them as means deserving of investigation. As the bowels are frequently loaded in puerperal women, large cathartic injections should always be exhibited on the first attack, and laxatives or purgatives afterwards exhibited so as more completely to clear the intestines. But it is only in the onset, that purga-

tives should be given, and even then they should be spared so long as the surface remains cold ; while in the advanced stage, they should be wholly omitted, as their operation might irretrievably sink the strength. Upon the whole, the pathology and treatment of all affections connected with venous congestion, have received the least attention, and are therefore the most open to improvement ; and my chief object in noticing this peculiar disease of child-bed, was to confess my imperfect knowledge of its nature and cure, that others might hereafter be led to undertake their more complete illustration. And if I have spoken confidently of those child-bed diseases which, being attended with universal excitement and topical disorder, have been comprised under the general term puerperal fever, that confidence rests on an ample body of evidence ; yet the treatment even of these diseases is so far from being perfectly accomplished, that all which has been written on the subject, ought only to be made the ground for advancing towards higher attainments, and more certain results.

CHAPTER VI.

THE SCARLET FEVER.

THE Scarlatina (x)Simplex, Anginosa, and Maligna, are the three species into which most authors have divided this disease; and certainly the first of these adjunctive terms is sufficiently exact, but the last are objectionable, since they do not mark the proper characters of the two remaining species. With respect to the epithet Anginosa, it denotes a symptom more or less common to all the modifications, and therefore cannot be correctly applied to one in particular. As for that of Maligna, it expresses nothing distinct concerning the nature of the disease, and confounds under one species some striking varieties; while it also involves an hypothesis as to the presence of something hostile to the principle of life; and may thus mislead by its received import. Yet to avoid innovation, I shall adhere to the old nomenclature, and, to remove obscurity, shall at the same time point out those peculiarities of the complaint not included in our common classifications; and though little or nothing new may be adduced relative to the two first species, it is hoped, that some additional information will be communicated on that which is deemed malignant.

(x)Dr. Good condemns the use of the term *Scarlatina*, as "barbarous and unclassical" and substitutes for it the more elegant and original name, *Rosalia*. This, so far as a correct, and consistent nomenclature of diseases is desirable, is decidedly the preferable appellation, and should be universally adopted by the profession.

SCARLATINA SIMPLEX.

It is not unknown to me, that Sydenham and De Gorter have noted the scarlet fever under so mild an aspect, that it terminated spontaneously, without any inflammation of the internal sauces. But, so far as my observation has extended, inflammation of the throat constantly attends the cutaneous affection ; it even takes place in some cases without that affection, and, according to my experience, may therefore be fairly received as an essential part of this fever. The inflammation of the throat, however, is slight in the simple scarlet fever ; that form of the disease, which is usually ushered in without much rigor, or disturbance of the stomach ; though uneasiness of the head, restlessness, and lassitude, are almost invariably present, with weakness of the pulse, and paleness of the face. These symptoms may continue from one to two or three days, and, designating the primary state of the disease, are succeeded by an universal excitement. It is commonly within the first thirty or forty-eight hours of this second stage that the scarlet efflorescence comes out, first upon the upper, and then over other parts of the body ; finally coloring the skin somewhat like the shell of a boiled lobster, and diffusing itself over the mouth, tongue, and throat. Early in the second stage some soreness or fulness is most frequently felt in the throat, and the voice is not quite so clear and sonorous as ordinary. The skin also, from the preternatural flow of blood towards it, soon becomes not only morbidly sensible to the touch, but rough, dry, and hot ; though the temperature of it perhaps rarely rises above 103° of Fahrenheit's scale. The lips are now of a more vivid color than natural ; the face flushed and rather fuller ; and the tongue commonly whitish in the middle, but red round the edges. Except in children under two years of age, who are always very irritable, the pulse is seldom much above 100 or 110 in the minute ; though during the greater part of this

stage it is increased in tone as well as in velocity. For the most part the thirst is not very urgent, yet the functions of the stomach are always impaired, and the alvine evacuations often somewhat darker than common. The pyrexia slightly remits in the morning, and rising in the course of the day, mostly reaches its highest point about bed-time, when a slight delirium sometimes occurs. But, as Heberden justly remarks,, there is no form of fever in which such an occurrence is of so little consequence as in this ; for as it proceeds from the exacerbations, so it almost always disappears on the approach of the remissions. The second stage, or that of excitement, seldom continues longer than four or five days, when it is followed by one of slight collapse, in which the pyrexia disappears, the pulse becomes slower and softer, and the skin more relaxed. About the time that the excitement gives way, the efflorescence begins to recede, and fades entirely away about the seventh day ; after which there are commonly more or less scurfiness and desquamation of the cuticle.(w)

Agreeably to my observations, the above is the common form and course of the simple scarlet fever. But it is occasionally of shorter duration, and in general terminates most favourably ; because there is hardly any internal congestion in the first stage, only a short and moderate excitement in the second, and of course no serious collapse in the third. Yet having now and then seen this variety, suddenly as well as gradually, pass into that form denominated Scariatina Anginosa, I cannot assent to the unqualified assertion of the illustrious Sydenham, that it is but a disease in *name*, only dangerous from the too great officiousness of the physician. In the

(w) Dr. Macmichael remarks that " scarlet fever is so various in its character, and one form of it so extremely mild, that it does most certainly sometimes pass through the system unobserved, and in many more instances under the name *rash*, exciting no alarm, and requiring no medical treatment ;" and this writer assigns as a reason why adults seldom have the disease, that they have in all probability been affected by it during infancy, in one of its mildest forms, in which it escaped observation.

very mildest form of the scarlet fever there is an increased heat of the skin and an accelerated pulse; but the blood seems to be so equally distributed throughout the arterial system, that local inflammation cannot be strictly said to exist. This equable distribution of the blood, when attended by a hot surface and a quick pulse, may be denominated simple excitement of the circulation, which is always accompanied with more or less change in the secretions; and this state, though it has been so constantly confounded with inflammation, obviously differs from it, inasmuch as in the latter the blood is always preternaturally accumulated in a particular part. Yet simple excitement may readily produce inflammation, and in fact is the most frequent cause of it; for if there be a latent weakness in any organ, the simple excitement, if not timely moderated, is sure to give rise to inflammation there. It is on this account, that many diseases, merely marked by simple excitement at the beginning, are complicated with inflammation in their progress; and hence it is, too, that apparently benign seizures of scarlatina, may eventually become the causes and concomitants of serious affections of some of the viscera. But it is time to pursue the inquiry of the scarlet fever.

SCARLATINA ANGINOSA.

The Scarlatina Anginosa is more strictly an inflammatory form of the disease, and attacks nearly in the same way as the simple scarlet fever. But to greater degrees of chilliness, head-ache, and restlessness, in the first stage, are superadded a marked oppression of the procordia and prostration of the voluntary powers, with nausea, retching, or vomiting. The efflorescence most commonly appears on the skin within the first three days from the developement of the excitement, and about the same time redness and swelling are observable on the internal sauces; the patient complains of stiffness in

the neck and jaw, and fulness as well as soreness in the throat, particularly when he attempts to speak or to swallow. The pulse is throughout quicker than in the simple scarlet fever; the thirst greater; the tongue drier, and more florid at the edges; the uneasiness in the head more distinctly felt; the stools darker, or more morbidly bilious; the heat of the surface more elevated, often rising to 106° or 108° of Fahrenheit's scale, and even sometimes higher. The evening exacerbation are also greater, and they often induce a species of delirium, in which the patient, particularly if left alone, or in the dark, talks much to himself. In this modification of the disease as in most others, the affection of the throat is dependent in a great measure upon the fever; if the latter should kindly abate, from the first four or five days, there will be seldom any sloughs or specks about the tonsils; but merely an increased secretion of mucus, some of which often adheres to the part, and looks like an ulcer. But when the fever continues longer, or runs higher, specks generally from about the tonsils, which are finally converted into superficial, ash-colored sloughs. Even when such cases are favorable, the throat is loaded with a glutinous mucus, and the pituitary membrane often inflamed: but neither the discharge of the throat nor of the nose is of an offensive or acrid nature. The superficial sloughs in the throat begin to separate as the fever declines, which it frequently does about the eighth day, and then the sores beneath heal rapidly. It sometimes, however, happens that, instead of ending so favourably, very dangerous symptoms arise in the progress of the fever; and in most of these examples the sloughs grow fouler, and the discharge from them and from the nose becomes very acrid. Painful indurations of the glands in the neck, tenesmus, or diarrhoea, are then not uncommon, all of which seemed to be connected either with irritation, or with the foul secretions of the fauces. Under these circumstances, patients sometimes gradually sink into an irrecoverable collapse; or expire from an attack of bronchial inflammation, or from gangrene of the throat. In other unfavorable instances, however, the danger is not confined about

the throat, but rather proceeds from the brain, which is sometimes greatly affected in the stage of excitement; and the patient at last dies comatose, about the end of the second week. Again, in cases of a still different character, where the brain is less seriously disordered, symptoms of abdominal disease arise in the stage of excitement, and by degrees become most urgent. At first there are only slight pain and soreness in some part of the abdomen, with a quickened pulse and respiration; but the pain and soreness gradually increase, and at length are attended with vomiting, eructation, fulness of the belly, and general restlessness. In six, seven, or eight days, the abdominal soreness and pain abate or disappear, while the pulse grows more rapid and feeble; the breathing more anxious; and the vomiting more urgent. Cold clammy sweats, and an universal collapse now speedily supervene, and are the immediate precursors of death.

It will appear, then, from the above account, that the Scarlatina Anginosa is sometimes attended with moderate, and at other times with severe symptoms; and it is of great consequence to bear this two-fold character in mind, more especially as the severe may follow the moderate symptoms at any period of its progress.

SCARLATINA MALIGNA.

The Scarlatina Maligna of authors ought not to be described under one indiscriminate form, as has generally been done, since it most unquestionably comprehends three varieties; the first of which is highly inflammatory, the second highly congestive, and the third has certain relations to both of these, because it is attended by venous congestions of the viscera, and by a partial and an impeded arterial re-action. But these varieties shall be separately described, and some remarks subjoined to each, by way of more clearly showing their leading peculiarities.

The first variety of the Scarlatina Maligna, however, highly inflammatory, has several symptoms in common with the Scarlatina Anginosa ; and in fact may arise out of the latter, as an effect, from the continued excess of arterial excitement. Nay, when it takes its proper characters at the very commencement, it is to be considered, not different in kind, but in degree only, as already hinted : for then it comes on with rigors ; dejection of spirits ; pain in the head and back : giddiness ; vomiting ; and much general oppression. Sensations of chilliness and heat succeed each other, until the stage of excitement be developed ; when, as in the other preceding forms, the efflorescence appears, which in general has nothing unusual in its colour, except that it often becomes of a somewhat deeper shade in the progress of the disorder. The fever is intense, and proceeds with impetuosity. Specks, therefore, are soon visible on the inflamed fauces : at first they are of a whitish, afterwards of a dingy ash, and lastly of a brown, or blackish colour. But in the most formidable cases, the disease ends mortally before the throat passes through these gradations ; and in general it is only when the fever is lengthened beyond the fourth day, that there are ill-conditioned sloughs, with an acrid discharge from them and from the nostrils. In some instances, however, I have seen deep and extensive sloughs cast off on the fourth or fifth day of the excitement, and in others have known patients expire before they separated. Soon after the stage of excitement is developed, the pulse is rapid and vibratory ; there is frequently a very great determination of blood to the brain, which speedily produces redness of the eyes ; intolerance of light ; throbbing pain of the head ; tinnitus aurium ; watchfulness ; and confusion of the mind, or delirium.(v) To these symptoms an overpowering but imperfect stupor often succeeds, now and then broken by loud screamings, or by fits of extreme violence or fretfulness. In some instances the

(v) The Delirium attending this variety is somewhat peculiar ; when interrogated, the patient will generally give a rational answer, but immediately after relapse into low muttering delirium.

head is less powerfully affected throughout, and during the whole stage of excitement, the patient complains most of pain, soreness, and heat, in some of the abdominal regions, accompanied with tension, or fulness of the belly; short, quick, anxious breathing; very rapid, small pulse; and considerable irritability and flatulency of the stomach. In other cases neither the head nor belly seem so very decidedly affected as above described; but the greatest oppression appears to exist in some part of the pulmonary system, especially in the trachea. But whatever parts may be disordered, the stage of excitement soon begins to give way, and is followed by that of collapse, in which the heat is diminished; the general powers fail; the pulse becomes weaker and quicker; the skin laxer; the tongue-fouler; and the respiration more laborious—in a word, those symptoms called putrid and malignant are now conspicuous. In this last stage, patients sink into convulsions, vomiting, or suffocation, according to the organ principally affected. But in whatever mode death approaches, there is always, in the beginning of the disease, a marked and unequivocal stage of general and high excitement, to which the appearances of extreme debility and putrescence of the last stage may be clearly traced as mere consequences.—It is this acutely inflammatory form of the scarlet fever, that Huxham, Heberden, and Cullen have denominated the most malignant; their descriptions distinctly showing, that very great excitement existed in the commencement, whatever degrees of putrescence might accompany the close.

This form of *Scarlatina Maligna* so far resembles the *Scarlatina Anginosa* from the first, that in both, the stage of oppression is of an uncertain continuance: sometimes it extends to three or four days, at other times occupies a shorter, and seldom a much longer term; but in general, the re-action follows soonest in those cases where there is a manifest fit of rigor. The last remark is perhaps applicable to most febrile diseases. In this form of the *Scarlatina Maligna*, as in the *Scarlatina Anginosa*, the danger is not to be apprehended from

the first stage ; except that in it, short as it may be, more or less venous congestion of the internal parts exists, which may predispose to inflammation in the second, or excititive stage, in which there is an emergence of preternatural heat, and of arterial activity. It is, indeed, in this second stage, that the main mischief is generally produced, both in the above form of the Scarlatina Maligna, and in the Scarlatina Anginosa ; and these two varieties then differ in nothing but in the degree of their attendant excitement, which is greater in the first than in the last mentioned. Whatever putrid or malignant symptoms may appear towards the conclusion of each, they are simply the products of the previous excitement ; and to consider them in any other light will give us most erroneous views of the nature and treatment of both these varieties. In the Scarlatina Anginosa, independently of the sore throat, and the occasional occurrence of pulmonary disorders, there are often early evidences of an affection of the brain, and of some of the abdominal organs. Among these evidences may be enumerated, constant pain, aching, giddiness, or some similar uneasiness in the head ; preternatural distension and throbbing of the temporal and carotid arteries, with an increased heat of the forehead and whole hairy scalp ; whilst the morbid appearances of the feces soon and clearly indicate the disordered state of the abdominal secretions, and consequently of some of the abdominal viscera themselves. If by any means, whether natural or artificial, the excitement should be timely moderated, the morbid actions subside without deranging the structure of any vital part, and of course the patient is speedily restored to health. But if the excitement should not be moderated, it generally advances until it produces disorganization, and is then succeeded by a fatal collapse. In the Scarlatina Anginosa, the excitement most frequently proceeds into the second, and sometimes even into the third week, before it occasions any mortal lesion. But in the more aggravated form of the Scarlatina Maligna, as the excitement runs much higher, so it terminates life much sooner, by disorganizing some vital tex-

ture. Yet diseases do not always observe the characters attributed to them in books, but change their forms at different periods of their course. Thus, as already intimated, the Scarlatina Anginosa sometimes assumes the appearance of the highly inflammatory form of the Scarlatina Maligna ; and on the contrary, the violence of the latter may be so checked at its onset, as to cause it to put on the characters of the former. From a cautious survey of the symptoms during life, and from the examination of several bodies after death, I am warranted in affirming, that the brain, the liver, the stomach, the intestines, and the lungs, are the parts most often inflamed ; and that the inflammation in these parts is generally the cause of death, together with the affection of the throat. It is imprudent to disregard a particular symptom, which uniformly accompanies any febrile disease ; but, on the other hand, it is equally injudicious to fix the attention so exclusively upon that particular symptom, as to withdraw it from many others. Several practical writers have certainly deceived themselves and their adherents, by considering the throat as the chief topical affection, and by disregarding those internal derangements, which are the constant concomitants of all the more urgent forms of the scarlet fever. It must not, however, be presumed from these remarks, that I mean in the least degree to depreciate an attention to the fauces. For, on the contrary, I think that they cannot be too narrowly watched, not only with a view to lessen the inflammation there, but to prevent it from spreading to the adjacent parts. It may be remarked, once for all, that whenever the respiration becomes at all oppressed in the scarlet fever, the observation should instantly be directed to the pulmonary organs, and especially to the mucous membrane of the trachea, which is not unfrequently inflamed during the course of this disease. Having thus endeavoured to give a brief exhibition of the pathology of the inflammatory forms of the scarlet fever, I shall pass on to the consideration of the congestive varieties, which will enable me to advert more distinctly to what has been called the Scarlatina Maligna.

There are strictly two congestive forms of the *Scarlatina Maligna*, one in which the re-action is partially and irregularly developed, and the other in which it is almost entirely suppressed. The lines of distinction between these two forms being very obvious, it is only proper that they should be separately described. The first, therefore, shall be denominated the irregular, and the last the regular congestive form.

The irregular congestive form is the least dangerous, and more protracted of the two; yet it often proves fatal, either from some defect or delay in the treatment, or from the peculiarity of its nature. It comes on much after the manner of the preceding varieties; but the first obscure stage, in which the sense of chilliness, head-ache, sickness, and lassitude commonly predominate, is almost always longer, and the following one of excitement much less perfectly displayed. Indeed, in the second stage the heat is principally concentrated about the trunk and upper portions of the thighs and arms, while some part of the wrists, hands, ankles, and feet, is often cool, or at least of the natural temperature. The excitement, too, varies in the course of the day. During each increase of fever the rash becomes more florid, and fainter as the re-action subsides; both the heat and colour of the skin, undergoing correspondent changes to these temporary exacerbations and remissions. The patient sometimes complains of preternatural heat, and sometimes of preternatural coldness; and occasionally of the latter, when the trunk feels hot to the touch of another person. The throat is always more or less red and swollen, after the occurrence of the stage of imperfect excitement; and specks or sloughs generally appear in a few days. In every modification of the scarlet fever, with the exception of the regular congestive, the state of the fancies is almost always proportionate to the degree of fever; and as the excitement is less uniform and intense in the irregular congestive, than in the inflammatory forms, so the throat is in general less powerfully affected. Although the sloughs, commonly, be neither so deep nor so extensive, as in the inflammatory forms of the

scarlet fever, yet the throat is liable to put on a gangrenous appearance, sometimes so early as the end of the first week, but far more frequently not until the second.

It may be remarked, by the way, that, however striking may be the relation between the conditions of the throat and of the pyrexia in the scarlet fever, a similar relation does not so generally prevail between the conditions of the efflorescence and of the throat; for there is sometimes a considerable affection of the latter, when the former is partial, and even evanescent. But to resume the description. In the irregular congestive form, the efflorescence is neither so much diffused, nor of so vivid a colour, as in the simple and inflammatory modifications; and it is, besides, much more liable to disappear, and to leave a sickly pallidity of the face. Nor are the lips and edges of the tongue of so bright a red, as in the two last mentioned varieties. Soon after the attack, the mind often labours under dejection or alarm, which is strongly depicted on the countenance; but sometimes the patient is in a state of dulness, confusion, or indifference, and the eyes are then vacant, and the pupils dilated. Yet in some instances, the intellect remains clear for a time, though uneasiness is always felt in the head, and often a load or anxiety referred to the region of the heart. Delirium is not very common at the onset, but it very often appears afterwards and is generally a conspicuous symptom in the advanced stage. The stomach is flatulent; the belly irregular; the epigastric region frequently somewhat fuller than usual; and the stools are always unnatural in colour and smell, indicating either a morbid or deficient secretion of bile. The pulse is low and oppressed in the first stage, and it rarely acquires much firmness or fulness in the second, though it is then quick and variable. In its natural progress, this form of the scarlet fever is often protracted to the end of the second week, and occasionally much longer. When it ends successfully, the recovery is frequently very slow, on account of the great collapse which succeeds to the state of imperfect excitement. If it be not actively treated soon

after the attack, there are, for the most part, symptoms which indicate some serious affection of the brain, liver, stomach, or of other important parts; and if these symptoms should not be speedily arrested, they may gradually or suddenly become much aggravated, and at last terminate life by coma, or low muttering delirium; by vomiting and purging; or by apparent suffocation. Towards the conclusion of such cases, there are frequently appearances of a dissolved state of the blood, as inky petechiæ, oozings of black gore from the nostrils and the like.

The scarlet fever which appeared among the children in Heriot's Hospital in the autumn of 1804, was a degree of the irregular congestive form; and would doubtless have proved very fatal, but for Dr. Hamilton's great attention, and judicious treatment. It appears from this author's concise but perspicuous history of the fever, that the symptoms were at first *apparently* mild. The throat was so little affected, that the uvula and aniygdalæ were only slightly swelled and inflamed; and superficial suppuration and sloughing only existed in a few cases. The cutaneous efflorescence was partial, mostly transitory, and left the countenance peculiarly pale; the eye was dull and heavy, the thirst moderate, but the debility great.—Sickness and prostration of appetite continued throughout the disease, and in some there were peculiar dejection and despondency hardly to be expected in such young subjects. The surface of the body was only *occasionally* of a pungent heat. The bowels were obstinately constipated, and the stools mostly black or greenish, and fetid, though sometimes less offensive, and of the colour and consistence of clay. The pulse was variable, never full, but always quick, except towards the end of the complaint, when it sometimes became slower than natural. The patients, Dr. Hamilton informs us, were the object of his serious attention for twelve or fourteen days, and even six weeks elapsed before some of them left the sick room. The danger in this epidemic obviously depended, not on the state of the throat, but of the internal parts, the congestions of

which prevented the free emergence of the fever, and especially affected the functions of the liver and intestines.

The irregular congestive differs from the inflammatory modifications of the scarlet fever, first, in generally having a more protracted stage of oppression; and, secondly in having a less perfect developement of excitement afterwards. The danger in this form may be three fold,—from the partial congestions about the large internal veins, from the unequal distributions of blood to different viscera in the capillary arteries, and lastly from the affection of the fauces. The congestions, however, of the first stage are not so considerable as to occasion any *immediate* mischief; though they pave the way to future lesions in the organs affected, and predispose them to be more readily influenced by the irregular distributions of blood, which attend the stage of defective excitement. Hence we find, that visceral engorgements and gangrenes are more frequently the cause of death than the disorder of the throat; at least, repeated observations and dissections have led me to this conclusion. In this form, the brain and liver are the organs which generally suffer most; although on examination after death, there are sometimes vestiges of low inflammation or of gangrene in other parts, especially about the stomach, intestines, fauces, and mucous membrane of the trachea.

The regular congestive form, next to be examined, so oppresses the vital functions in the first stage that there is still greater internal remora of venous blood, and less internal and external re-action of the arteries than in the forementioned variety. The subjects of this modification are for the most part suddenly attacked. They become pale, faint, and sick; and chiefly complain of pain, load, or giddiness in the head; extreme oppression; and much uneasiness in the region of the heart, or at the pit of the stomach. Sometimes they at once sink, as if overcome by an uncommon shock, and lie in a state of confusion and oppression, without making much complaint. At other times they walk about pale and languid for two or three days, and then take to their beds, like persons completely

worn out by some great fatigue, or mental anxiety. When the attack has once decidedly occurred, the respiration is either quick and anxious or slow and impeded. There is often a mixture of livor and paleness in the face; the eyes are frequently dull, but sometimes glairy, and they acquire a fatuous or an inebriated expression in the course of the disease.

The mind, at first alarmed, confused, or dejected, soon becomes disordered with delirium, or an indifference to surrounding objects, and a stupor, succeed, under which patients finally expire. From the beginning the pulse is generally low, impeded, and irregular, and commonly continues so to the last; but in those cases where there is a very slight degree of re-action, it sometimes has a short and rather sharp feel for a certain period, and at last grows weak and undulating. At first the tongue is commonly whitish in the middle, paler than natural, and covered with a slimy saliva; but towards the close it often becomes rough and darkish, and the breath is then usually offensive. The bowels are commonly distended with flatulency, constipated or irregular in the first stage, but frequently loose in the last. The feces are sometimes darker, at other times lighter than natural. The stomach is often extremely irritable; yet occasionally it retains every thing that is taken; though the deglutition becomes more difficult as the disease advances. This form of the scarlet fever frequently runs its fatal course in two, three, or four days, from the occurrence of the extreme general oppression; and there are almost always appearances of putridity in the last stage, such as oozings of blood from the mouth or nostrils, dark hemorrhages from the bladder or bowels, inky petichiæ, or gangrenous spots upon the skin. A few hours before death there is often a superficial glow of heat diffused over the body, accompanied with a darkly flushed face; high breathing; accelerated pulse; and partial or general sweats.(u) But this

(u) Under these circumstances the skin is intensely hot and dry; breath fetid; thirst insupportable, and the countenance interspersed with dark livid spots. If a high degree of delirium or hemorrhages ensue, the patient is usually cut off in a few hours.

mere semblance of excitement soon subsides; the extremities grow cold; the face assumes a cadaverous hue; and where the skin is pale it often has almost the smooth, waxen appearance of the surface of a corpse.

In this regular congestive form, the efflorescence is from the first of a purplish or copperish hue, and deepens as the disease advances. Sometimes it quickly recedes without ever returning again; a circumstance which, though not peculiar to the congestive modifications, is most liable to occur in them. In some very rapid and fatal cases of the form under consideration, the throat is but slightly affected; yet in the instances which continue beyond the fourth day, there are generally specks or sloughs in some part of the fauces; and I have witnessed those appearances when there had been previously little or no constitutional excitement. This fact seems to prove, that local inflammation may exist under the severest modifications of congestive disease; and it also forms an exception to an assertion formerly made, that the affection of the throat is generally proportionate to the degree of constitutional excitement in the scarlet fever. But notwithstanding the above remark, relative to the throat, it is very doubtful whether the inflammation existing there, would of itself pass into gangrene uninfluenced by the condition of the internal organs, and of the general system; for the fauces usually do not assume an alarming appearance, until the disease is protracted to the fourth or fifth day, or until the vital energies evidently begin to fail. The affection of the throat, abstractly considered, is perhaps rarely the cause of death. In what parts then, it may be asked, are the principal derangements to be sought in this form of the scarlet fever? It may truly be answered, in venous congestions of the brain, liver, spleen, lungs, or about the vessels of the heart; for if these congestions be not timely removed, they produce an universal collapse, and visceral disorganizations, and also tend to change the constitution of the blood itself. In four mortal cases of this form, after death the brain and liver were found engorged with grumous blood, and the large ves-

seals in the vicinity of the heart much distended ; with some loose and large coagula in the right cavities of that organ, while the left auricle and ventricle were empty and partly collapsed ; and it may be here remarked, that in most diseases of the strictly congestive character the right sides of the heart will be found much distended with blood after death. There was in one of the above cases an appearance of gangrene in the throat ; but in the other three which ended on the second day, the traces of disorder were comparatively slight in that situation. Dr. Currie, in alluding to this form of the Scarlatina, mentions that the heart does not rise much above the standard of health ; and on this ground seems to think, and rightly too, that the cold effusion is not applicable. In those cases which have fallen under my care, the heat has generally been rather somewhat below, than somewhat above the natural point ; and where the central parts have been warm or hot, the extremities have mostly been cold. It is deeply to be lamented that this enlightened physician did not more independently pursue the investigation of so obscure a variety of the scarlet fever ; for had he done so, there can be no doubt but he would have deviated from the beaten track of error.— He acknowledges, with his accustomed candor, that all remedies had been equally unsuccessful in his hands ; and this was not surprising, since the chief of those remedies were cinchona and wine, and since even he has so blended the symptoms of the first and last stages together, as to persuade himself that this form is highly putrid from the very commencement. Yet if accurately attended to from the first attack, it will be found that the signs of putridity or malignancy do not constitute a primary and essential part of this form, but are purely the consequences of excessive congestions ; for if we can remove the congestions in the beginning, we most certainly prevent the occurrence of putrid or malignant symptoms.

In the open forms of fever, where heat and arterial re-action are universally developed, the danger is to be estimated by the degrees of the general excitement, and of the topical

determinations; whereas in the masked or congestive forms of fever, the danger is proportionate to the defect of the excitement, and to the extent of the local accumulations of venous blood. Arterial excitement is an excess, venous congestion a deficiency, of natural action. The first is most liable to occur in constitutions of a high tone, the last in relaxed or torpid habits; but there are exceptions to this remark, since the applied cause may be so slight as to rouse a feeble frame into re-action, or it may be so severe as to oppress a vigorous one into perfect and overpowering congestion. The extremes of excitement and of congestion appear to be more common in tropical than in temperate climates; and hence the great danger of the most concentrated attacks of the bilious remittent fever, which are either highly inflammatory, or highly congestive. In Great Britain, we most frequently witness fevers of excitement, though those of congestion have not been sufficiently marked or investigated. The attention of the medical public has been too exclusively directed to the phenomena of the arterial system; but it is to the venous system that we must look for the foundations of many important diseases. From the whole tenor of these remarks, it will be readily perceived, that the irregular and the regular congestive varieties of the *Scarlatina Maligna* may occasionally change their character; since any cause which tends to lessen the venous fulness of the viscera may create the perfect re-action of the simple or of the inflammatory varieties. But as each of the modifications of this disease most commonly begins and proceeds in its peculiar characters, they all have been singly noticed; and as the descriptions were drawn from an extensive observation at the bedside of the sick, it is hoped, that they will be found correct in the most important particulars.

Before concluding the history of the scarlet fever, there is one circumstance, to which I cannot refrain from pointedly adverting, and it is simply this:—when that disease prevails epidemically, children and even adults, some time after exposure, now and then die suddenly, from the operation of the conta-

gion, without any appearance of efflorescence or of sore-throat. They are attacked with convulsions, or with symptoms of apoplexy, and frequently sink into insensibility and death in a few hours; and therefore, properly speaking, such instances are but increased degrees of the regular congestive variety. No author, with whom I am acquainted, has noticed this the occasional effect of the contagion of the scarlet fever; but as it took place casually during an epidemic, witnessed some years ago, I have deemed it a duty to record it here. Occurrences of this kind, it is well known, are not uncommon in the plague: and perhaps they happen oftener in the contagious fevers of this country than we are at present aware; at least they are not limited to the contagion of this particular fever, but now and then follow that of the measles, and of typhus. It now remains for me to attempt their explanation. One of the first obvious operations of contagion, like that of cold, is a change of action in the cutaneous vessels, and a recoil of blood from the surface towards the centre. But contagion also produces, directly or indirectly, a peculiar effect on the nervous system, which is chiefly evinced in the disturbed functions of the brain and of the stomach. The change of action in the cutaneous vessels, the recoil of blood towards the centre, the want of sensorial power, and the disorder of the stomach, all concur to oppress the heart and arteries; and we accordingly find, that the arterial circle every where beats more languidly than natural, a superabundance of blood being accumulated about the right side of the heart, and in the larger internal veins. Now this venous accumulation is sometimes so great as to overwhelm the functions of the brain, lungs, liver, or heart; and the last mentioned organ collapsing the usual interchanges of blood between the venous and arterial apparatus are carried on no longer, and the death of the whole system necessarily ensues. In general, however, the venous congestion is not thus mortally overpowering at once, but rather of such inferior degree as to rouse at least into some resistance the latent energies of the heart; and indeed it most frequently happens that a

tone is at length acquired, which gradually extends throughout the whole arterial circle. The stage of re-action, therefore, whatever may be its final tendency, is immediately beneficial. Whenever the stage of re-action is not partially or perfectly developed in febrile diseases, the danger is instant and imminent. Most sudden deaths arise from great venous congestions. It cannot be doubted that venous congestions are *ceteris paribus*, more dangerous than arterial re-actions; because, as the former are more rapid, and also more difficult to remove, so the latter relatively give longer time and greater facility for medical aid, nay, sometimes spontaneously subside into health. Arterial re-action is the mean by which nature preserves the human frame from the sudden and dangerous shocks of venous congestion, when it impedes or prevents re-action, he ought also to moderate arterial excitement, when excessive; for as the congestion may be immediately, so the excitement may be ultimately fatal.

From all the preceding remarks it should appear, first, that the Scarlatina Simplex is generally an affection of slight excitement, which now and then, however, passes into the Scarlatina Anginosa: secondly, that the Scarlatina Anginosa and the first form of the Scarlatina Maligna are not only connected with sore throat, but with an excitement that may arise into sub-acute or acute inflammation: and thirdly, that the two congestive forms of the Scarlatina Maligna are combined with less or more venous fulness, and the one with only a partial, and the other with an almost total want of excitement in the arteries. It is indeed to the different degrees of excitement and of congestion, that all the modifications of the scarlet fever owe their pathological peculiarities, and that some of them are mild, others moderate, and the remainder severe.

TREATMENT OF THE SCARLATINA SIMPLEX.

The treatment of the most febrile complaints is founded upon the same or similar principles, in that notable stage of oppression, which invariably precedes the re-action or the hot stage which we strictly denominate fever. The first stage of oppression is a struggle between the innate powers of the body and the morbid cause: and therefore the practitioner ought to assist the efforts of nature in the first place, and to moderate them in the second, should they become greater than is necessary. If it be asked what is meant by the efforts of nature, it may be rejoined, that their essence consists in the tendency which there is in the system to return to the long established actions of health; and we see this tendency conspicuously displayed in many diseases, though it may itself be ultimately productive of disorder, as already shown in speaking of the quality of re-action. Numerous writers on fever have re-echoed the opinion, that the excitement in the hot stage is in a ratio with the cold and rigor in the first stage, here termed that of oppression: but it would be far more correct to say, that the degree of re-action in the hot stage is in a ratio to the degree of internal congestion in the first stage, except where that internal congestion is so extreme as wholly to overpower, or greatly to depress, the *vis insita* of the system. Yet as the signs of congestions in the stage of oppression are not uniformly the measure of the degree of the congestions themselves, it always becomes us to act with the greatest circumspections on the first appearance of the precursory symptoms of fever; and we should not, as is too generally done, leave them to proceed uninterruptedly, until all doubt of the abstract nature of the disease be removed, by the subsequent occurrences. It should be repeated again and again, that most of the rudiments of danger in fevers are laid in the first stage of oppres-

sion, and if we can alleviate the symptoms of that stage, we thereby usually insure a most favorable issue. This is beginning to attack diseases earlier than is generally recommended; but the force of remedies is then far the greatest, since the morbid actions are but just engendered, and yield sooner than when they have acquired a determined mode and character from continuance. For some years past it has been my study to attend closely to the first indistinct stage of febrile diseases; and the sum of my observations is, that proper remedies applied at that period, at least, always render their course more moderate than it would otherwise have been. Hence whenever the scarlet fever has prevailed, I have directed parents to watch narrowly over their children, that they might inform me of the very first signs of the operation of the contagion: when called thus early, while paleness of the face and skin, head-ache, sickness, and lassitude, were perhaps the predominant symptoms, I have found a brisk purgative first, and an antimonial emetic next, and the tepid bath last, of the most essential service: in fact, they free the system from the pressure of the plethora of the internal blood-vessels, equalize the whole circulation, and thus most frequently render the future case mild and manageable. Sometimes a combination of the tartrate of antimony with the sulphate of magnesia, or of the pulvis antimonialis with calomel, will rapidly reduce the heat and quickness of the pulse, by acting as an emetic and a purgative at the same time; and the efficacy of one or other of the above compounds is exceedingly great in most incipient fevers of simple excitement, where the stomach has not been previously irritable. When the head or some other internal organ has appeared to suffer more than ordinary pressure in this stage of the simple Scarlatina, I have first put the patient into a warm bath, strongly impregnated with salt; and immediately afterwards have either applied a few leeches near the part most affected, or take a *very little* blood from the arm. At this early period and under these circumstances, large bleedings ought to be avoided, as they are often extremely

prejudicial on the very first shock of the disorder. When the re-action is once fairly developed, we estimate by its degree, by the affection of the throat, and by the state of particular organs, and of the general system, whether the fever be strictly the Scarlatina Simplex ; and even if it should be found of that form, the sooner the excitement is restrained the better; for if left alone, it might sometimes pass into the Scarlatina Anginosa, and finally derange some vital part. In very young children the excitement of the simple scarlet fever is more especially to be checked ; as in them it sometimes directly affects the brain, or indirectly, through disordering the functions of the thoracic or abdominal viscera, and eventually leads to convulsions.

For the above reasons, therefore, when the re-action emerges in the simple scarlet fever, the tepid affusions should be used four or five times in twenty four hours, and an active aperient daily, with rest, ventilation, cleanliness, a bland liquid diet ; and such measures will be all that are requisite. In the stage of collapse, which is usually very slight, milk, light animal broths, and similar articles, should always be preferred to wine and cordials ; because they restore the strength much sooner, without the risk of creating any secondary fever. Nor is this a matter of such small importance as it may at first sight appear ; for it must be remembered, that it is generally a disease of young subjects, who, even after its decline are often easily excited into fever by strong stimulants. There are certainly examples on record, where large quantities of wine have been given without apparent prejudice, if not with advantage, about the decline of the scarlet fever. Where the collapse is extreme, and unconnected with local lesions, such a treatment may sometimes be beneficially pursued. Yet in the greater part of febrile complaints, it is frequently quite unnecessary in the last stages, in which it may often occasion more mischief than advantage. Some cases of what has been termed hydrocephalus internus have followed the simple scarlet fever in my practice, which seemed to result from the ad-

ministration of wine in the last stage ; and I have seen low inflammations of the chest and abdomen induced by the same cause, finally leading to dropsies of those regions. After recovery from the simplest forms of fever, the circulatory system is in a very susceptible state for some time ; and if there be any where a tendency, constitutional or acquired, to increased action, the administration of cordials is almost certain to produce an actual inflammation in that part. In strumous habits, this irritable state of the circulation is more particularly conspicuous, and in them enlargements of the internal and external glands are then readily induced by the free employment of wine. In short the pernicious effects which so frequently result from this excitant, have long since made me abandon its exhibition altogether in children recovering from fever. Mild fresh ale has been my substitute, where any stimulus has been thought necessary for them : it excites much less than wine, and often tends to restore the tone of the general habit, and keep the bowels moderately open.

After the cessation of the simple scarlet fever, the desquamation of the cuticle will be much accelerated by the occasional use of the tepid bath, which is likewise a good preventive of those hydropic swellings, which may follow the mildest attack. But the best way to guard against such distressing consequences is to avoid stimulants, to keep the bowels daily open, to confine the patient within doors for several days after his complete recovery, and when he goes abroad to order him some additional clothing. These precautions should be particularly enforced when the disease has been mild ; as in such cases the relatives of children are generally thrown off their guard, never anticipating the chance of any secondary disorder.

The hair generally comes out on the abatement of every form of this disease ; and if the head be not shaved, it neither looks nor grows well afterwards. But if the scalp be shaved two or three times, and repeatedly washed with warm water, when the patient is recovering, it will frequently, I believe,

grow and look as well as it did formerly. Nor ought the preservation of the hair to be deemed unworthy the attention of a medical man; for, independently of contributing much to the beauty of the form, it serves to protect the integuments of the head from the influence of cold, and to lessen the force of accidents.

TREATMENT OF THE SCARLATINA ANGINOSA.

As in the simple scarlet fever, the treatment of the first stage of the Scarlatina Anginosa should consist in brisk purgatives, a mild emetic, the warm bath, and bland, tepid diluents; unless there be decided marks of visceral oppression, and then, as an additional measure, a little blood should be drawn. As soon as the stage of excitement becomes apparent, by the whole surface being morbidly hot and dry, the cold affusions should be promptly employed, and repeated for the first twenty-four hours, as often as the burning heat and dryness of the skin return. In several cases I have seen this disorder completely arrested, by five or six repetitions of the cold affusion, used on the first day and night of the excititive stage. In the beginning of this modification it can hardly be said, with the exception of the throat, that any one part is positively inflamed; though there are evidences of unequal distributions of blood in different quarters, and an elevation of arterial tone, which clearly indicate an approach to actual inflammation. It has repeatedly struck me, that the great utility of the cold affusions consists, not so much in directly abating an existing topical inflammation, as in removing or diminishing that general excitement of the heart and arteries, by the continuance of which topical inflammation may be produced or prolonged. Hence their great efficacy at an early period of the second stage of those idiopathic fevers, in which the general excitement occasions or increases local irregularities in the circulation.

According to my observations, however, it is only within the first three days of the stage of excitement, in this variety of scarlatina, that the cold affusion will generally be of the most decided benefit; for though they may sometimes alleviate urgent symptoms when the re-action has continued longer, they will rarely extinguish the pyrexia, as at an early period. When those febrile diseases which are called idiopathic have advanced beyond a certain term, they seem to have a sort of determinate duration; at least our remedies have then less influence, so that they rather moderate than at once subdue the fever. If depended on singly, in the first, second, or third day, of the stage of excitement, the cold affusions will not always succeed, as reiterated trials have enabled me to prove. On the whole, the advantages of this valuable practice have been too highly estimated by Dr. Currie and some of his followers, in the scarlet fever. But in venturing upon this assertion, it is not meant to cast the slightest imputation on the memory of that excellent physician, whose labors deserve to be consecrated by a national monument. Yet such is the tendency of human nature to generalize too far, that when an useful discovery has been made in physic, its powers for the most part have been much overrated, especially by the person who first brought it decidedly into public notice and repute. This indeed might naturally be expected. The consciousness of having extensively benefited mankind tends to create an exalted enthusiasm, which overlooks many probabilities of failure, and anticipates little else than continued success.

Having often been disappointed when I trusted to the cold affusions alone, it has for some time past been my established practice, to use them in conjunction with active purgatives, in the Scarlatina Anginosa. Experience has fully satisfied me, that these measures are far more efficacious unitedly than separately applied, during the first, second, and third day of the stage of excitement. After the last mentioned period, it will generally be much better to omit the cold, and to use the tepid affusions, which may be daily continued with the purgatives

through the whole of the second stage. Some judicious practitioners of my acquaintance entirely confide in the tepid affusions and purgatives; and the great success, which I have repeatedly witnessed from this treatment, warrants me in giving it a strong recommendation, in this variety of the scarlet fever.

It is recommended by high authorities, to exhibit cathartics during the day, that the bowels being opened before bed-time, the patient may have a respite from their operation throughout the night. Greatly as I respect some of those authorities, I cannot implicitly subscribe to this special recommendation. It is certainly highly advisable to get the bowels freely moved before bed-time: but why should the purgatives always be omitted in the night? It is at that period, that the febrile exacerbation is commonly present, and therefore the practitioner should not allow it to proceed unimpeded: on the contrary, he ought to strive to lessen its intensity and duration, and this may often be most effectually done by using both the tepid affusions and purgatives freely during the night. When this treatment is pursued, it will be found, that the patient generally falls into a quiet sleep about the period of the morning remission; whereas if it be omitted, he will usually pass an uneasy or a watchful night, and be restless the greater part of the next day.

It has already been hinted, that the affusions alone may fail in curing the Scarlatina Anginosa; and this is sometimes the case, though rarely in comparison, even when they are, cold or warm, jointly employed with active purgatives. In such untoward cases, morbid dissection will almost invariably show, that inflammation of some of the viscera, as well as of the throat, was the cause of death. When, therefore, the cold or tepid affusions and purgatives do not afford relief, the practitioner may be sure that there is some latent inflammation present, and should endeavour to detect and remove it, without loss of time. In several cases of this nature, minute investigation has satisfied me of the existence of visceral inflamma-

tion; and moderate venesection has been used with the most admirable effect. The crassamentum of the blood drawn was always covered with a buffy coat. When symptoms of *a subacute* visceral inflammation appear on the second, third, or fourth day of the second stage, there need commonly be no hesitation about general blood-letting, provided it be used soon after those symptoms apparently originated. But when the visceral inflammation has been permitted to advance for several days without resistance, or when it arises about the sixth or seventh day of the second stage, it often becomes a delicate point to determine whether the lancet should be employed. If there be appearances of universal collapse, and of an approach to gangrene in the throat, all thoughts of bleeding ought to be abandoned. But if, on the contrary, there be neither appearances of universal collapse, nor of approaching gangrene in the throat, general or local blood-letting may sometimes be safely and even advantageously used under the circumstances here considered. In such examples, the question is simply this—Whether is there greater danger to be apprehended from the inflammation, or from the depletion? Visceral inflammation has almost invariably a natural tendency to terminate mortally. Depletion produces debility only, and debility alone is rarely the cause of death in fever. As there is, in this stage, more danger from the inflammation, than from the depletion, an attempt ought to be made to arrest the inflammation, whencesoever it may proceed, or wheresoever it may be situated. When, by the long continuance of the inflammation, or the extreme delicacy of the patient, I have been deterred from general venesection, it has been usual with me to order several leeches near the region of the topical affections; and considerable benefit has often resulted from this practice, especially when it has been followed up by purging and the warm bath. In such cases, blisters are sometimes beneficial, in conjunction with the means above mentioned; but they should seldom be applied in the advanced stage of the disease, as they then not only produce much general irritation, but are some-

times succeeded by a gangrene of the part to which they had been applied.

It is fortunate for the practitioner who has an early opportunity of trying venesection, as he then possesses the power of fairly demonstrating its efficacy; but it is mostly painful to him to be compelled to venture on this measure late in the disease, when the probabilities are against any plan that may be adopted. No man should practice physic, who is not at all times fully prepared to risk his professional reputation to the chance of saving his patient's life. In cases like those now contemplated, it is often almost certain that the diseases will end fatally, unless it be arrested or moderated by some prompt application. Under circumstances so delicate and so trying, personal expediency might suggest to the physician to shelter himself under a cautious prognosis, and to avoid risking his character by measures which may make an immediate impression: but in contravention to this cold and selfish doctrine of expediency, there is, indubitably, a right and a wrong in human conduct, independent of consequence; and that which we know and feel to be a duty, we ought always steadily to pursue, even if it should expose us to open censures, or to secret insinuations. We cannot always command success, even in the most promising cases; and where we fail in doubtful and dangerous ones the best consolation is, the consciousness of having done our utmost. Yet there is a point which, if once past, renders the employment either of general or local bleeding more hazardous than its omission. Whenever, therefore, the practitioner has just reason to dread that the general powers of the system might sink under the loss of blood, he should determine to trust to purgative medicines, combined with frequent doses of calomel, and the use of the tepid affusions, or of the tepid ablutions; and it is only candid to acknowledge, that these measures will sometimes succeed under a concourse of symptoms which seem all but desperate.

When the *Scarlatina Anginosa* is efficaciously checked within the first three or four days of the second stage, ulcers

very seldom form in the fauces. But when the force of the disease is not broken by the fifth or sixth day, the throat is commonly more or less affected with the well-known, peculiar, sloughing sore. Gargles of the sulphuric, nitric or muriatic acid, or of lemon juice, properly diluted with water, are sometimes useful, not only in cleansing these sores, but in clearing the fauces from viscid matter; and where they have not produced the desired effect, I have rarely hesitated to order mild emetics, provided no evidences of abdominal inflammation existed.(t) In fact, emetics are far the best gargles, where the throat is much obstructed from an accumulation of tenacious mucus; their operation effectually dislodges that morbid secretion for a time, often greatly relieves the respiration, improves the appearance of the ulcers, and may even prevent an attack of cynanche trachealis, as well as lessen the chances of the inflammation in the throat extending along the Eustachian tube to the internal ear. They may be repeated, the above caution as to the abdominal inflammation not being disregarded, at any time during the continuance of the fever, when the respiration or deglutition is much impeded by accumulated phlegm: but since I exhibited purgative medicines freely from the commencement, I have seen infinitely less of those foul sloughing sores in throat, and have therefore had comparatively little occasion to prescribe emetics. And it may be here also remarked, that nothing contributes so much to preserve the structure of the internal ear from derangement, as the early and continued use of aperients: almost all the aural discharges of pus which I have seen follow the scarlet fever, occurred in cases where free alvine evacuations had not been daily pro-

(t) Those remedies are most to be relied on which act immediately on the local disease, and on this account emetics are highly serviceable. Of these, the sub-sulphate of mercury, in the dose of two grs. suspended in molasses, is a good article, especially if after vomiting the same be continued in small doses, as the eighth or tenth of a gr. several times in the course of twenty-four hours.

cured. Where gargles are deemed necessary for the throat of young children, they should be injected by a syringe, since they can seldom be used by them with advantage in the ordinary way ; and whenever the fauces are much loaded with phlegm in such subjects, the most assiduous care should be taken, day and night, to keep the breathing as free as possible. From an ignorance of the necessity of so constant precautions, I have known some patients suddenly lost in convulsions ; and once saw an only child who died in that mode, while the nurse had fallen asleep.

In the early part of my practice, I gave wine with much freedom in the advanced stages of almost every form of this disease ; but I gradually and most satisfactorily ascertained, that brisk and repeated *purgatives* in the first and second stages, and *laxatives* in the last, best removed the depression of strength, and rendered the use of wine far less necessary. Indeed wine should never be exhibited in the first and second stages ; and only in the third when there is an urgent debility. The diet should be of the lightest kind in the first and second stages, such as barley water with lemon juice, or milk whey. In the last stage, milk and water with a little arrow root, chicken broth, or beef tea, may generally be allowed. If any diffusible stimulants have been deemed requisite on the prevention of the stage of collapse, moderate quantities of mild fresh ale have often proved much more efficacious than wine, but particularly in children, who are so easily excited. In some instances, however, where the collapse is very great, I have given at certain intervals, equal portions of Maderia wine and milk, with unequivocal benefit. But when wine is ordered, its effects should always be minutely observed, as was advised in typhus ; and whenever it augments the fever, it should be abandoned for some less powerful excitant. In a state of convalescence, wine should hardly ever be allowed ; for it then tends to re-produce general excitement and topical accumulations, which may lead to fatal inflammations, or to dropsies of some of the visceral regions.

In summing up the treatment of the Scarlatina Anginosa, it may be added, that if purgatives, aided by the cold or warm affusions, be properly exhibited from the beginning and during the advancement of the excitement, it will seldom be necessary to recur to bleeding in the second, or to wine in the last stage; for the combined influence of these expedients, with an antiphlogistic regimen, most frequently so diminishes the general and the local excesses of the arterial system, as alike to ward off inflammation and debility. The publication of Dr. Hamilton's excellent work on purgative medicines has been doubly beneficial. In the first place, it removed many absurd fears and prejudices, and clearly showed the utility of purging in several diseases; in the second place, it insensibly led us to push cathartics, with increased advantage, further than he had recommended, in the first stages of many highly acute distempers. Those physicians, whether practising in temperate or in tropical climates, who have tried large and repeated doses of calomel, must be fully convinced of their superiority in the onset of ardent fevers; but in no febrile disease do they seem of more decided benefit than in this, when daily determined to the bowels by some other auxilliaries. Confident in this important fact by numerous observations, I have not hesitated to prescribe calomel boldly throughout the whole stage of excitement, always acceleraring its operation by jalap or rhubarb, with moderate doses of the sulphate of magnesia; and it is somewhat remarkable, that though I have given from six to eight grains of this mercurial to children, twice, thrice, or even four times in twenty four hours, yet I have not once seen ptyalism supervene. It must however, be observed, that I have never continued the use of the calomel beyond the decline of the stage of excitement in favorable cases, having always in them employed milder measures from that time. Decisive practice is only necessary during the urgency of the pyrexia, and it is the height of empiricism to continue it indiscriminately throughout all stages; nay, such a procedure is almost always more dangerous than

beneficial, and is calculated to bring the best remedies into disrepute. If we suppose, that the action of medicines is the same in disease as in health, we shall often be egregiously mistaken, and particularly in respect to calomel; because a few grains of that preparation will usually affect the mouth in health, whereas in fevers attended with a hot and dry skin, we may give full and repeated doses, without producing any such result. The operation of almost all medicines is materially modified by the state of the system at the time of their exhibition; so that small doses may at one period suffice to induce some desired end, and at another it can hardly be accomplished by large and often renewed doses. It is still too much the fashion to declaim against the bold administration of calomel in the commencement and progress of ardent fevers; as if it were neither dangerous to trifle away those precious moments in palliatives, nor judicious to attempt a radical cure. Only let practitioners put calomel fairly and extensively to the test in febrile diseases, and we shall soon cease to have imaginary and unfounded clamors against its free employment: for here it is a medicine which, like an injured and innocent individual, will have its character restored by an impartial and a strict examination.

Nevertheless, calomel must not be entirely depended on in the Scarlatina Auginosa, since its efficacy will be greatest when it purges freely; and such is often the torpor of the bowels, that it frequently fails to operate, unless assisted by the remedies before mentioned. The stools will always be found to indicate a disorder of the hepatic secretions; and this is an additional reason why calomel should be boldly prescribed. The effect of purgatives on the heat of the skin is very conspicuous in this form of the disease: indeed I have never known them to fail in reducing it, and sometimes several degrees, when they acted freely;—an incontestable proof that their influence is not confined to the primæ viæ, but extends through the whole vascular system. Yet highly as I commend purgatives in the first and in the second stage, they

must generally be withheld when the stage of collapse approaches. Those milder medicines, strictly called *laxatives*, will then be the most beneficial; except where the bowels have been previously neglected, and then one or two brisk purgatives may be given, the strength being sustained by cordials during their operation. Whenever the general system is in a state of actual or approaching collapse, cordials must always be combined with the evacuants; for if the evacuants be employed alone, they will often depress the vital powers irrecoverably. Many patients have, in fact, been lost purely from excessive purging in the last stage of acute fevers. The body is then prostrate from the previous excitement; and we should make as little demands as possible upon its remaining resources. Our evacuations, in particular, should be carried no further than to remove feces actually accumulated in the bowels, and to allay irritation. On the first attack of fever, the strength may be said still to exist, though in a *latent* state; and proper depletion, if we must preserve the chemical figure, will only serve to render it *sensible* again. But in the last stage, the vital energy, like the vital heat, has begun to fail, and may be wholly extinguished by the very measures, which would have preserved it in the first stage. This difference between the beginning and the conclusion, is often remarkably manifest in the Scarlatina Anginosa; so much so indeed, that what was excellent practice at the one time, would be mortal at the other. It is for want of having properly marked the various stages, that so much discrepancy of opinion exists as to certain modes of depletion. If there are circumstances which make us turn from copious evacuations of all kinds, but especially from bleeding, still there are others which confessedly render this measure absolutely necessary; so that when the symptoms cannot be early restrained by the ordinary evacuations, we must promptly have recourse to the lancet. Though it will appear, from the foregoing pages, that I have been cautious in advising venesection, yet in several instances I have bled moderately and most successfully in the onset of

the excitive stage of the Scarlatina Anginosa; and can conscientiously declare that, at this period, and in this modification I have not known it prejudicial in a single example.

TREATMENT OF THE SCARLATINA MALIGNA.

When the scarlet fever is epidemical, any train of ill-defined signs of fever, accompanied with much disorder of the head and stomach, should always be most narrowly watched, as they are often the precursors of the highly inflammatory or the highly congestive varieties; and if they should not be relieved by purgatives, an emetic, and the tepid bath, a small portion of blood should be abstracted, for the reasons before stated. It was formerly noticed, that the most common form of the Scarlatina Maligna, only differed in the degree of its excitement from the Scarlatina Anginosa; and indeed this seems implied in the writings of many authors, who assert, that the former does not so much differ in its very onset, as in its progress, from the latter. Yet it sometimes happens, that we have the same terrific combination of symptoms at the close of the Scarlatina Anginosa, as at that of the highly inflammatory form of the Scarlatina Maligna; and the only difference then is, that the last mentioned has run a more impetuous course, producing the malignant symptoms in a less time. It is indeed the grand discriminative sign of the highly inflammatory form of the Scarlatina Maligna, that the general excitement is brief and excessive, rapidly effecting the destruction of some vital organ. When, therefore, the excitive stage of this form is once fairly revealed, it is absolutely necessary to act with the greatest decision, since every moment of time is then most precious. If it should be allowed to proceed many hours without being checked, it occasions the lesion of some important part, and an irretrievable exhaustion of the general powers. Wine, bark, and aromatic cordials, so forcibly, so indis-

criminate, and so fatally recommended by numerous authors, were once the means upon which, unfortunately, I relied for the cure of this modification of the scarlet fever; and from repeated trials of them, I can truly affirm, that they are most pernicious in the first stage, and most destructive in the second. At the latter period they always add fresh momentum to the impetuous excitement of the circulation, which, without such auxiliaries, has a tendency to consume the living energy, and to derange the organic tissue. Instead, then, of adopting the stimulant plan, let the practitioner give a fair trial to the cold affusions as soon as the stage of excitement is developed; and if they should not effectually reduce the fever, let him not pause an instant longer, but open a vein in the arm or neck, or a branch of the temporal artery, and allow the blood to flow until it is stopt by an approaching faintness. The rules laid down as to phlebotomy in typhus, are also applicable here; for in the acute inflammatory form of the scarlet fever, a repetition of the operation ought, if possible, to be avoided. But as the excitement is higher in this disease than in the inflammatory typhus, the first blood-letting should be a most decisive one, so as to induce a lessened action in the whole of the circulatory system. If, however, it should not give a marked relief to the most prominent symptoms, a second, but more moderate venesection should be tried, in an hour or two afterwards, as that interval will generally afford sufficient time to estimate the effects of the first; and even where a second bleeding may not be deemed adviseable, it will be mostly found advantageous to apply some leeches to the temples, or to the region of the liver. The head should always be much raised; and after having been shaved, it should be repeatedly covered with folds of linen soaked in cold water. This practice in cases so violent is much superior to blistering the scalp. As half measures will only bring discredit upon the depletory treatment, the practitioner must not stop here; but he should endeavor, immediately after the blood has been drawn, to get the bowels freely and frequently moved, by very large doses

of calomel and jalap, aided by the sulphate of magnesia, or some other neutral salt. The purgative plan must be persisted in vigorously, in combination with the calomel, until there be a visible change for the better in every respect.

But it must be recollected that these powerful proceedings should be solely confined to the stage of excitement, and that unless they are carried into effect within the first thirty hours of that stage, nothing decidedly beneficial is, for the most part, to be expected from them. Having too frequently witnessed the fatal results of depletion, when prosecuted in the last stage, and likewise the complete inefficiency of half measures in the second, I am certain, that nothing short of very early, prompt, and decisive blood-letting and purging can afford a fair chance of success, when the cold affusions fail in the first instance. No cases of this form of the scarlet fever have come under my observation, in which diffusible stimulants appeared to be really serviceable in the first and second stages; but on the contrary, several cases have occurred in which they were rapidly destructive. Bleeding and purging, however, employed at the time and in the mode above recommended, have been the means of snatching many patients from the most imminent peril. Nevertheless, it is only justice to acknowledge, that though the depletory practice has frequently succeeded, it has also sometimes failed, even when fairly and fully tried. The more completely, however, to illustrate the evacuant treatment, a few cases shall be detailed, in some of which it miscarried, and in others succeeded.

Some years ago, a robust girl, in the tenth year of her age, was attacked early in the day with chilliness, head ache, and sickness. She remained much oppressed during the whole day, and became restless and hot towards the evening; when she complained much of stiffness of the neck, load at the stomach, and deep pulsating pain of the head. She passed a most uneasy night, and next morning the scarlet efflorescence was evident on the neck, breast, and arms; the throat much inflamed; the tongue white in the middle, and of a blood-red

round the edges; and the pulse quick, small, and hard. The temporal arteries throbbed with violence; and the surface was every where dry and pungently hot. At this period the cold affusions were thrice applied in the space of two hours, but they gave no permanent relief. Purgative medicines were therefore prescribed; but as the greater part of them were rejected by the stomach, and as the symptoms continued to grow more urgent, eight ounces of blood were abstracted from a large orifice at the arm. This produced some alleviation for five or six hours, after which the fever returned with nearly as much violence as before. The warm affusions were now used, in conjunction with aperients. But as the stomach again became irritable, the latter produced very little effect, and only a temporary reduction of the morbid temperature was obtained by the former. The signs of excessive disorder in the stomach and head almost hourly augmented; and on the fourth day the stage of collapse supervened, attended with petechiæ, black tongue, dark bloody stools, fetid breath, and other malignant symptoms. The patient died at an early hour of the fifth day.

In this case, the cold affusions had, perhaps, a tolerably fair trial, at least it seemed useless to persevere longer in their employment; but the stage of excitement had existed probably more than fourteen hours before their application—a great loss of time in cases so severe. The venesection should have been carried further in the first instance, or promptly repeated when the fever returned; and it is to the one or other of these omissions that the failure was at least attributable. At all events, it is not at all unlikely that a more copious detraction of blood might have so impeded the fever, and allayed the irritability of the stomach, that the purgatives administered would have operated freely, and thus given a chance of recovery.

A stout vigorous boy, about nine years old, went to school in the morning, apparently quite well; but returned home in the afternoon, complaining of coldness, giddiness, and pain at his stomach. About eight o'clock in the evening he became

hot and thirsty, and vomited some liquids which had been given him. Soon after this period, he said that he was drowsy, and at his own request was put to bed ; but so far from sleeping, he had a most restless night, and early on the next morning was highly delirious. At this time a deep red efflorescence was diffused over the neck, breast, arms and thighs. The temperature of his whole skin had been excessively high during the night. He continued to rave almost incessantly, and at nine o'clock on the following evening, twenty nine hours from the period of his sickening, my opinion was first requested. The surgeon in attendance, from whom I obtained the preceding history of the case, informed me, that he had been consulted about fourteen hours after the attack ; that he had prescribed an emetic and a purgative, both of which had operated without producing the least relief ; and that he had not been able to examine the throat, on account of the violence of the patient. At this time, the efflorescence chiefly occupied the neck, breast, and upper parts of the arms and thighs, and was of a deep red colour. Numerous small pecthiæ were observable on different parts of the body ; the cheeks were deeply suffused and hot ; the lips livid and cool ; the tip of the nose and lobes of the ears quite cold, and the eyes bloodshot. The trunk was considerably above, while the extremities were somewhat below the natural temperature. The boy lay, with his eyes half open, in an apparent stupor for several minutes, then started upon his breech, threw his arms violently about, and shrieked loudly. His breathing was quick and anxious ; his pulse about 160 in the minute, and though very small yet it firmly resisted pressure. Under such a combination of dangerous symptoms, little was to be expected from any mode of treatment, at so advanced a period of the second stage. The reduction of heat on some parts of the body, warned me, that the stage of collapse was not far distant ; yet the evidently engorged state of the brain, and the hard, resisting pulse, induced me to recommend venesection, as a dernier effort. Repeated attempts at opening the temporal artery having been

frustrated, a large orifice was in consequence made in the median basilic vein. The blood flowed in a full stream; but from the excessive struggles of the patient we could not get more than six ounces. No benefit resulted from the operation, and his continued violence prevented us from having recourse to other expedients. General and strong convulsions came on about five o'clock on the subsequent morning, which rapidly put a period to his existence, about thirty-eight hours after the first attack.

From the speedy termination of this case, there was every reason to suppose, that the throat was not ulcerated. After death, the abdomen became swollen and tense; and part of the integuments of the back, abdomen, and thighs, remained of a deep, livid, red colour. An examination of the viscera was repeatedly requested in this case, but was always peremptorily refused. In all probability, the cause of death was an intense degree of cerebral inflammation, together with a similar and co-existent affection of some of the abdominal organs. Venesection was certainly attended with no positive advantage, either because it was used at too advanced a period, or because a sufficient quantity of blood could not be obtained. Perhaps to a mind prejudiced by the doctrines of debility and putrescence, phlebotomy might appear contra-indicated, and even prejudicial in both of the examples above related. It is, in truth, no difficult matter to bring the evacuant practice into apparent discredit. Depletion used too sparingly, or too late, will never be serviceable, and will sometimes really hasten the fatal event, by sinking the general powers, without removing the topical affections:—hence evidences might be easily furnished, which would enable its decided opponents to draw inferences against its general utility. But as its failure, in cases like the forementioned, may generally be traced to its unseasonable, or to its partial application, so the following will serve to illustrate its efficacy, when opportunely and fully tried.

An irritable boy, in the ninth year of his age, who had been

infected from a mild case of the scarlet fever, began to complain after bed-time of faintness, pain and swelling in the head, and uneasiness of the stomach. He felt alternately chilly and hot, during the night, and next day the scarlet efflorescence began to appear, and the skin became of a high and uniform heat. At four o'clock in the afternoon, he had a manifest tendency to delirium, complained almost constantly of flying pains in different parts of the body, and was exceedingly restless. The pulse was above 140 in the minute ; the tongue dry, and of a light red ; the throat inflamed ; the neck stiff and painful ; the eyes wild, suffused, and sparkling ; the face swollen, and deeply flushed ; and the breathing hurried, almost to panting. In addition to these symptoms, there were fulness and tenderness in the epigastric region ; frequent retching or vomiting ; much flatulence of the stomach ; intolerance of light and noise ; and a peculiar deep, throbbing pain in the forehead. When my advice was requested, the symptoms had existed about eighteen hours, including the stage of oppression ; but the excitement had not been developed more than half that period. Here then was a fair opportunity to prove the powers of the depletory treatment, and it was accordingly adopted without loss of time. A large orifice was made at the arm, and the blood permitted to flow until it was stopped by an approaching syncope. About ten ounces were requisite to produce this effect. When the patient recovered from the fainting, four leeches were applied to each temple ; and soon afterwards half a scruple of calomel was exhibited, and its action determined to the bowels by repeated doses of jalap and the sulphate of magnesia, and an occasional cathartic injection. The general and local blood-letting had effectually allayed the irritability of the stomach, and the aperient medicines operated powerfully in four or five hours. The most striking alleviation followed this practice ; and a regular perseverance in the use of calomel and other purgatives, brought the patient to a state of convalescence in four or five days. In this case, the brain and stomach seemed the organs chiefly

disordered ; and I have not the smallest doubt but it would have ended unsuccessfully, if depletion had not been promptly and decidedly pursued.

About the same period, a girl in the thirteenth year of her age, came under my care, who, nearly twelve hours after the developement of the excitement, was afflicted with a violent, continued pain in the head, and vertigo ; confusion of mind ; sense of faintness ; load at the stomach ; nausea and retching ; great general restlessness ; and quick, anxious breathing.— The skin was excessively hot, and of a deep scarlet colour, and there were considerable redness and swelling in the fauces. The eyes were morbidly sensible to light ; there was an inexpressible anxiety depicted on the countenance ; and the temporal arteries throbbed forcibly, and the pulse at the wrist felt like a small chord. Twelve ounces of blood were abstracted from a branch of the temporal artery, which brought on complete syncope ; when that, however, receded, the patient expressed herself much relieved. But as there still remained evidences of a preternatural accumulation of blood in the head, purgatives were freely exhibited as before, and cold stupes frequently applied over the scalp. When the medicines had acted plentifully, there was a still further abatement of the urgent symptoms ; and they were therefore omitted for a time, the room where the patient lay being kept very cool and quiet. But after the lapse of three or four hours, there was an evident exacerbation of the fever. As the mischief seemed to be still seated in the head, the hairy scalp was shaved, and ten leeches applied to the temples and forehead. The purgatives were again administered with great freedom, until they produced several copious evacuations. These measures had the desired effect ; for they not only entirely broke the force of the fever, but removed the affection of the head, and the recovery of course was rapid. Yet the patient was for some months afterwards troubled with a deafness which had appeared at an early stage of the disease. The brain was perhaps the only viscus attacked with inflammation, which at first was merely checked, but

eventually subdued by the blood-letting and by the brisk purgatives.

In some instances of this form, I have bled twice freely in children from the arm, from the external jugular vein, or from the temporal artery, before a sufficient impression could be made upon the visceral inflammation; yet as it has always been my aim to make one general bleeding answer if possible, I have never had recourse to a second, but from the most imperious necessity. It has appeared to me a great error to trust solely to venesection, in fevers connected with very high excitement. For, to give efficiency to such a practice, the evacuations of the vital fluid must generally be repeated again and again, and even after all they often fail to arrest the progress of the local affections; and where they do apparently arrest those affections, they not unfrequently induce an irritation and exhaustion, under which patients may rapidly sink, or from which at least they recover slowly, and seldom afterwards gain their pristine vigour. It would be a most instructive lesson to the medical world, if those practitioners who have trusted to profuse bleedings alone were candidly to state the whole results of their experience; and I cannot but apprehend from my own observation, that their successful cures would be arranged with many melancholy instances of failure. The partial statement of facts, with regard to a particular practice, is frequently both deceptive and dangerous; since it may lead us to place so complete a reliance upon it, that we only might be convinced of its imperfections by its actual miscarriage on our fellow-creatures. Perhaps the history of medicine, from Hippocrates to the present time, would bear me out in the assertion, that physicians in all ages have been too much in the habit of trusting to a favourite, unassisted remedy; and this has been more especially the case with respect to venesection, upon which so many eminent men have exclusively rested their hopes of success in inflammatory diseases. If bleeding and purging had always been combined in the treatment of highly acute complaints, the result would have been much more fa-

avourable, than where either of those plans had been separately pursued. It is in the early, decisive, yet moderate use of the lancet, speedily followed up by purgatives and alteratives, that we shall alike avoid rashness and timidity; and it is in a judicious combination of these three agents, that a method will be formed far superior to any plan founded on an exclusive preference for one remedy.

In speaking of the Scarlatina Anginosa, I have strongly insisted on the efficacy of full doses of calomel, succeeded by other purgatives, in the stage of excitement; and in this more impetuous form, the calomel must be still more freely administered, and the same or even greater care must be taken speedily to assist its operation by the bowels. To use unnecessary delay in such cases, in the exhibition of cathartics, is to risk the life of the patient; and as the morbid actions are unusually active, so must be the nature of our remedies.—When we recollect the great length of the intestines, we cannot be surprised that frequent and copious motions should lessen the general excitement and the topical determinations; and, doing this without the hazard of consequent debility, they are particularly adapted to the second stage of inflammatory fevers, after the judicious employment of the lancet. But in almost every such fever the abdominal secretions will be found disordered, at least they are strikingly so in the variety under consideration; and calomel not only tends to restore them to a natural state as a purgative, but likewise exerts an influence over all the capillary system, by which it equalizes the circulation. That portion of blood which was oppressively superabundant in one or more parts, calomel diffuses throughout the whole habit; but there are certain circumstances which must be overcome, before it can generally effect so beneficial a change. Whenever there is an excessive emergence of heat and of arterial re-action, especially when combined with a cerebral determination of blood the body resists both the purgative and the specific action of calomel; and under such a morbid condition, calomel will seldom be useful,

Except in conjunction with other depletory measures. But where bleeding has been premised, or where evacuations of the bowels are simultaneously procured, the universal excitement and its concomitant oppression are so reduced, as to render the system permeable to the power of calomel; and acting then under the most favorable circumstances, it produces benefits which cannot be wrought by any other medicine, and, like oil poured over ruffled water, it reduces agitation into calmness.

During the administration of the purgatives, the tepid affusions will sometimes be found useful; but where the abdominal viscera seem to have been considerably affected, the warm bath should have the preference. Both these expedients, when properly employed, tend to lessen nervous irritation, and arterial excitement, but more especially after bleeding, and while an action is maintained on the bowels: sometimes they equalize the circulation, like calomel, by creating an universal perspiration, which considerably diminishes the internal affections. Still, however, they must only be considered as second means at the best, in this violent variety of the scarlet fever; and therefore the practitioner should never allow his attention to be occupied by them exclusively, since far more effectual measures are at the same time necessary. It is one of the nicest points in the practice of physic, not to be too profuse or too sparing in our applications, but to make their united force exactly equivalent to the reduction of the prominent symptoms. Whatever energetic means may be required in the stage of excitement for this form of the Searlatina, it must never be forgotten, that those means are only to be continued during that stage, and while the dangerous symptoms remain unsubdued; since to continue powerful evacuations when the symptoms for which they were at first prescribed have actually been removed, or to push them on vigorously when universal collapse approaches, would be an indiscriminate rashness in the practitioner, that might be hazardous, if not mortal to his patient. In this form, the excitement varies in its duration

considerably in different subjects: sometimes it terminates in less than twenty-four hours, as in a case already reported; and in other instances it is protracted to the third, fourth, or fifth day, but seldom longer than the last mentioned term. For these reasons, there is a considerable range as to the time in which depletion may be employed; but it may always be made with more boldness the nearer it is used to the onset of the stage of excitement. If the evacuations should arrest, generally and locally, the morbid activity of the circulation, the strength of the patient will thereby be saved; because the continuance of that morbid activity would exhaust much more than the evacuations, and besides it has a tendency to derange the structure of vital parts. It is not an uncommon thing to hear some practitioners contend, that the strength of the febrile patient should be nursed and preserved in the beginning, to enable him to meet the collapse which must necessarily occur at the close: and under this fallacious, this perilous impression, I have seen cordials administered with a view to guard against the very consequences which they were powerfully calculated to produce. The collapse in the last stage of fevers attended with an open and universal development of heat, is proportionate to the degree of arterial excitement which always precedes the collapse; and whatever tends to increase the excitement also tends to increase the collapse; and on the contrary, whatever lessens the excitement likewise lessens the degree of collapse. We cannot therefore support the strength of patients by cordials during the excitement, since they necessarily augment the excitement which ultimately occasions the collapse; but we most effectually support their strength by promptly checking the excitement at its first invasion or before it has advanced far, through the agency of measures which remove heat, allay irritation, and lessen the force and the quantity of the circulating fluids.

When the excitement has been timely checked in the highly inflammatory form of the Scarlatina, the stage of collapse will be comparatively slight; and a milk diet, with quietness, prep-

er ventilation, and laxatives, will be all that are necessary to ensure recovery. During convalescence, great care must be taken to avoid cold, and whatever may excite the vascular system; as very slight causes may re-produce visceral inflammations, or occasion dropsical effusions—for the prevention of both of which effects, purgatives and the tepid bath are amongst the best measures. If the excitement should not have been successfully restrained, the stage of collapse will almost always be combined with disorganization; and therefore little good is in general to be expected from medical means. But as the disorder of function sometimes assumes the character of derangement of structure, we should never abandon any case as utterly hopeless; on the contrary, we should be the more attentive in our endeavours to save the patient, so that if we fail, we may be satisfied of having performed our duty. Venesection is then entirely out of the question, and the only evacuation that can be safely induced must be by aperient medicines; and even that must not be pursued too far, lest it sinks the feeble remains of life. The strength should be supported under the operation of the laxatives by small and repeated draughts of warm wine; and if any irritation should arise, it may be allayed by moderate doses of opium, which are occasionally more beneficial than might be expected, especially when combined with the aromatic confection and camphor. The hands, face, breast, and soles of the feet, may be now and then washed with warm brandy and vinegar, and some refreshing aromatic water may be sprinkled over the bed-clothes. Ventilation and cleanliness should be particularly regarded, since they are necessary in all the forms, and at all the stages of this and of every other contagious fever. Frequent observations have convinced me, that the accumulation of any febrile contagion is highly detrimental to the sick; it having the power to augment the fever in the first stages, and to change the constitution of the fluids in the last.

In the irregular form of the congestive scarlet fever, or that in which the excitement is partially developed, purgatives and

the warm bath are the best remedies. But to ensure success they must be employed from an early period, and diligently persevered in for some time afterwards. The bath should be used about twice every twenty four hours for the first four or five days, and then only once in the same term, until there be appearances of recovery. The purgatives should be so exhibited as to move the bowels about four or five times daily, so long as the general oppression and irregular state of the excitement remain.

The belly is generally torpid at the beginning, and the dark or clayey appearance of the excrements shows, that the functions of the liver are much affected; indeed, if they can be brought to a natural state, recovery will mostly follow. On this account calomel is peculiarly serviceable, which should be given with considerable freedom at first, and its action on the bowels accelerated by the compound powder of jalap, or the tartarized infusion of senna; the last of which, when rightly prepared, is a medicine which children like better than almost any liquid purgative. When the feces have become of a healthy colour, and the functions of the skin have been restored, the calomel may be omitted, and a little castor oil occasionally substituted, or calomel magnesia mixed with lemon juice. In conjunction with aperients and the warm bath, small doses of pulvis antimonialis or of the liquor ammoniae acetatis may be sometimes useful as diaphoretics; although small and repeated doses of the carbonate of ammonia are often superior in occasioning a gentle and general perspiration, which materially contributes to remove internal congestion. It is commonly necessary, in this form of the disease, to give moderate portions of some diffusible stimuli as soon as the stage of collapse approaches; and mild brisk ale, or porter, is one of the best that can be given to children, or a little Madeira wine diluted with milk.

In bad cases where, from neglect, the feces have been allowed to accumulate, it is sometimes absolutely necessary to purge briskly for a short time, even in the stage of collapse.

And whenever this is done, the strength of the patient must be supported by the occasional exhibition of good wine, during and after the operation of the purgative, as has been fully explained in treating of typhus. But it must be recollect, that so long as the stage of irregular excitement continues wine is generally a dangerous agent; warm diluents, such as gruel or weak chicken broth, being infinitely preferable. For some time after convalescence from the irregular form of the congestive scarlet fever, great care is requisite; as there is not only a singular tendency to obscure visceral inflammations, but also to dropsies. The occurrence, however, of both these affections may frequently be prevented, by the occasional use of laxatives and the tepid bath, together with warm clothing, a milk diet, and a residence within doors for two or three weeks. The dropsies of the chest and abdomen, which supervene after recovery, are commonly the effect of a low inflammation of the pleura, or of the peritonæum, or of some obstruction left in the liver; and therefore those parts should claim particular attention for some time after the abatement of the original fever. As the regular congestive is an aggravation of this modification, and as it constitutes one of the chief varieties accounted malignant, I shall enter more into detail respecting its treatment.

The regular form of the congestive scarlet fever, the cure of which is next to be explained, is occasionally preceded for two or three days by obscure febrile symptoms, as chilliness, paleness of the face, heaviness of the head, languor, and loss of appetite. If the attack were reckoned from the time that the above mentioned symptoms occurred, we could say with truth, that the lancet might be used with propriety so late as the second or third day. But as this form generally makes an open, sudden, and overpowering invasion, the period proper for venesection is for the most part limited within the first twenty four hours of the decided signs of congestion. After the appearances of great and general oppression occur, the stage of universal collapse soon supervenes, and the mass of blood is

changed into a dark, uncoagulable gore. As soon therefore as the attack is clearly manifested, not a moment should be lost in having recourse to the most active measures; as delay is more dangerous in this than any other modification of the disease.

The first thing that should be done in these cases is to immerse the patient in a warm bath strongly impregnated with salt, provided it can be speedily prepared; and while he remains in it, or immediately after he comes out of it, as much blood should be abstracted as will free the pulse from oppression; the skin in the mean time being well rubbed with coarse flannels dipped in some stimulating liquid, such as warm vinegar and salt. The warm bath and frictions cause a flow of blood towards the surface, and thus contribute to relieve the central parts from congestion; and, in fact, unless these be premised, it is generally a very difficult matter to abstract blood in the most severe instances, so striking is the change induced in the cutaneous circulation. Where the warm bath cannot be readily obtained, frictions by warm flannels and warm stimulating liquids must be used instead, and bottles or bladders of warm water applied to the feet and other parts; that is to say, this plan must be pursued previously to blood-letting, where the internal congestions afford sufficient time, and where the skin is of an irregular heat, for want of its ordinary distributions of the sanguiferous fluid. Blood must be drawn with much more caution in the highly congestive than in the highly inflammatory form; since the state of circulation in the one differs essentially from that in the other. In the highly inflammatory form, we have a rapid tense pulse, with all the signs of an excess in the force or in the frequency of the whole arterial streams of blood; and therefore, when called early, we may venture on decisive venesection, the effects of which will then only be to reduce the preternatural fulness and rapidity of the arterial currents to something like the ordinary calmness of health. But in the highly congestive form of the scarlet fever, there is an actual diminution in

the force of the arterial circulation, on account of an excessive accumulation of blood in the venous apparatus of the interior parts; and therefore, if we bleed too largely, we may so diminish the already oppressed energies of the arterial system, as to make the heart at once sink under the shock. Consequently, small or moderate bleedings are generally preferable in this congestive modification; although instances now and then occur in which full bleedings are required, to restore the lost equilibrium. One would naturally suppose, *a priori*, that bleeding from the veins would be most beneficial as the engorgement exists in them: and yet in some cases where blood could not be obtained from the veins, I have seen the best effects follow the abstraction of blood from the temporal artery. There seems an intimate sympathy, probably through the heart between almost all the blood-vessels, whether venous or arterial; so that a certain impression made at some of the branches extends, like an electric influence, throughout all the vascular system.

Whenever the practitioner bleeds in the highly congestive variety of the scarlet fever, he should keep his finger constantly upon the pulse, from the moment that the blood begins to flow: and if he should find it rising in force, he may be assured, that he may safely proceed to a moderate extent; but if, on the contrary, he should find it continue to sink, he must immediately bind up the orifice. Venesection should never be carried to fainting in great venous congestions. During syncope almost all the blood is accumulated in the veins; and where there has been extreme oppression before the bleeding, throwing the patient into that condition might prove fatal.—It most frequently happens in cases of this variety, that the blood at first merely trickles from the punctured vessels; but the operator must wait for some time, and he will generally obtain a stream of blood at last. Many a life has probably been lost from binding up the arm too soon, in examples of disease accompanied with excessive congestions of venous blood. When there is a free return of blood to the skin after ven-

esection, warm diuretics will be the best drink that can be administered; but when the skin remains cool after venesection, it will mostly be necessary to give the patient small and repeated portions of warm wine and water, until some degree of arterial re-action succeed, and then diffusible stimuli of all sorts must be omitted. Immediately after the use of the warm bath, frictions, and bleeding, a large stimulating cathartic enema should be injected—an expedient which is more or less beneficial, not only by clearing the lower part of the bowels of their contents, but also by lessening the irritability of the stomach. In conjunction with the means above mentioned, there is no agent with which I am acquainted, that tends to equalize the circulation in congestive cases so much as calomel; and whenever it can be made by a bold administration to create a free, warm, and universal perspiration, with a copious flow of bile, the patient may be generally considered out of danger. In the most formidable examples of the highly congestive variety of the Scarletina, the secretion of bile is often totally suspended at the commencement; the liver being in a state precisely analogous to that which occurs in the worst instances of cholera morbus, so engorged with venous blood as to be incompetent to perform its wonted offices. All the instances of this modification of the scarlet fever which proved rapidly mortal, were designated by an absence of bile in the motions; and the same has been the case in all the most concentrated attacks of cholera morbus, which have fallen under my inspection. In both these affections, therefore, a plentiful flow of bile is a favourable circumstance; and I believe that few cases of the highly congestive scarlet fever will end fatally where the hepatic secretion became copious and natural at the same time. As the stomach is generally very irritable in this form of the Scarletina, the calomel must be given suspended in mucilage, and in eight or ten grains doses even to children; and this quantity must be repeated two or three times within the first thirty hours—the short period in which the patient will be either saved or lost. If the calomel should not purge, it may be assisted by other cathartics, after it has been two or three hours in the intestines;

and where the stomach is exceedingly irritable, it may be advantageously exhibited with small doses of the camphorated tincture of opium, which accelerate its action on the skin, and do not retard either its specific or its purgative operation, both of which are requisite at the same time, that calomel may be eminently beneficial.

If it were ever so much desired, it is a most difficult thing to excite ptyalism very early in children labouring under febrile diseases, but particularly when under those of the congestive class where the brain is disordered; and it is not in general until the cerebral oppression be lessened by evacuations, that we see salivation take place. In ordinary complaints, ptyalism is one of the first obvious effects of mercury, but is often the last in those of an extraordinary nature: hence in the highly congestive scarlet fever we most frequently find the liver, kidneys, and skin excited by the calomel, while the salivary glands remain unaffected, unless it be continued when the general oppression is on the decline. The most certain test of calomel performing its intended office in congestive diseases is, the appearance of an universal excitement under its exhibition; and if that action can be fairly established, every vestige of the previous and opposite one of venous congestion will soon be erased. Ptyalism is certainly so far desirable in these cases, that the moment calomel begins to act as a salivant, we have distinct indications of re-action throughout the whole extent of the arterial system; but it is prudent when that re-action has once been created prior to ptyalism, particularly if the skin be moist, not to exhibit calomel very largely, but rather to employ it moderately, in conjunction with cathartics.—Children at all times certainly suffer more from salivation than adults, and whenever it is excited in the former, it should claim an especial attention, that it may be at once moderated by purgatives and the tepid bath; and, notwithstanding what some authors have asserted, I have never known an instance of ptyalism attended with the slightest hazard to children, where these precautions have been timely

used. Mere salivation is at no time to be considered as the principal part of the efficacy of mercury, yet it is one of the surest signs that it is operating on all the secretory organs of the body; the conjoint evacuations elicited from them, and the return of the tide of the circulation into the arteries, being the means by which the local engorgements and the general oppression are relieved in congestive diseases. By instituting such a peculiar process through the agency of mercury, we only imitate the operations of nature when they are successful in throwing off such affections; since when any organ is spontaneously freed from venous congestion, it is by an arterial re-action, and an augmented secretion. If the liver or lungs be overloaded with venous blood, the one is relieved by an arterial excitement and a flux of bile, and the other by an arterial excitement and an effusion of mucus into the bronchia; as we have an example in point of the first in the disease called cholera morbus, and of the last in certain cases of spasmodic asthma. It is the local engorgements and the general oppression, in the highly congestive scarlet fever, which require calomel to be freely exhibited before it will act either as an aperient or as an alterative: and here we have another striking instance how disease modifies the operation of this medicine, even when the skin is not of a preternatural temperature. We must constantly bear in mind the state of the system at the time of prescribing calomel, otherwise we shall be liable to commit perpetual mistakes in its administration; and it is chiefly from an inattention to this circumstance that it has been given with such dangerous freedom in some diseases, and in such feeble and ineffectual doses in others. Highly as I approve of a short and powerful course of calomel in certain acute complaints, my observations have deceived me much if this medicine be not greatly abused in chronic affections; and some practitioners I suspect have yet to learn, that it may be boldly and advantageously given for a short time under great oppressions, but that its long or profuse administration in many slow diseases, very frequently breaks down the system more than those diseases themselves.

The blood abstracted is never covered with a buffy coat in the regular, congestive form of the scarlet fever; and this is likewise the case in all diseases attended by similar conditions of the venous and of the arterial systems.—The formation of what is called the inflammatory crust, requires general re-action and preternatural heat; and where these are absent in fevers, it will perhaps never be found. In some febrile cases, where general re-action and preternatural heat existed, I have seen the blood drawn from a vein exhibit the buffy coat, while there was none upon that drawn from an artery; although the operation had been performed nearly at the same time, so that the two currents flowed simultaneously. The blood circulating in the arterics is of a higher heat than that circulating in the veins even during health; and the arterial blood requires a much higher heat than the venous, to make it separate the inflammatory crust: hence we so often find this phenomenon upon the venous, and rarely upon the arterial blood. Yet the want of the inflammatory crust is no test of the impropriety of venesection, since it is absent in a most formidable class of diseases which imperiously require the lancet. When blood is drawn in the beginning of congestive affections, it tends to create a re-action in the heart and arteries, and this re-action if not restrained, sometimes passes on to inflammation—an occurrence which explains the reason why there may be no buff upon the blood drawn the first day, and why it may abound in the second. Even the blood of persons in health may be made buffy by bleeding; for less or more re-action generally follows that operation, where there was previously no increased excitement. These hints may tend to illustrate the changes induced by phlebotomy in venous congestions; such as are now the subject of inquiry; and they may also contribute to show with what care diffusible stimulants should be given in the commencement.

In extraordinary cases of this nature, it is always best to bring all the most efficient remedies into action at the same time, as their collected, is invariably much greater than their

individual influence. Acute diseases often readily yield to the rapid shocks of a prompt and powerful treatment; whereas they will proceed in defiance of many feeble, protracted, and desultory efforts. In conformity to this doctrine, it has been my usual plan in the regular form of the congestive scarlet fever, to trust to one general blood-letting, in combination with the warm bath, frictions, tepid diluents, calomel, purgatives, and opium; and besides these means, leeches and blisters have been sometimes applied. Having fairly tried the efficacy of such powers, within the shortest possible period, in a general way I attempt little more afterwards, than merely to assist the operations of nature by mild measures. It is perhaps too common an error in the practice of physic, to make trifling evacuations in the beginning of highly acute diseases, and to repeat them too frequently afterwards. Under this method the patient is bled or purged daily for some time; but although the collective sum of the evacuations be very large, yet as each evacuation is separately small, the ultimate effect is that general strength is completely consumed, and the disease remains unsubdued.

In the first stage of the regular form of the congestive scarlet fever, the energy of the system is not exhausted, it is only weighed down—the debility is not real, but merely apparent: (s) there is then simply congestion of the venous system, and a consequent oppression of the powers of the heart and arteries. When, however, the first stage advances unimpeded, in the last an universal collapse always occurs, and is joined, not with venous congestions only, but also with disorganization of some of the viscera. This view of the subject may serve to

(s) The attentive reader cannot but observe this interesting fact respecting apparent debility, so often mentioned in most of the preceding chapters, and though we have before called attention to it, its importance induces us again to mark the fact, in order to show with what admirable consistency our author treats of febrile diseases. It seems to be the grand point on which his whole mode of treatment turns in the commencement of all the diseases we have passed in review.

illustrate the principles of treatment adapted for each of these stages. Well-timed and judicious measures may restore the balance of the circulation in the first stage, and insure a final recovery; but every measure is precarious in the last stage, for what human agency can repair great lesions of structure? With the exceptions already stated, wine ought rarely to be given until the approach of the last stage. Yet when the overpowering pressure of the internal congestions has been lessened by sufficient depletion, the occasional administration of a little Madeira wine is sometimes exceedingly serviceable, especially where the action of the heart and arteries has not become freely developed after venesection. As in the last stage it is sometimes impossible to determine precisely whether the danger proceeds from mere congestion and debility, or from congestion and organic lesion, wine is generally a remedy deserving of a fair trial; whereas bleeding is then entirely inadmissible, and all evacuations, except moderate purging must be carefully avoided. If there be organic lesion, wine will rapidly aggravate all the symptoms, and of course it should be withdrawn; if there be simple congestion with exhaustion it, will at least alleviate suffering, and occasionally prolong and even save life, particularly when exhibited with small and repeated doses of opium, which will frequently be an useful auxiliary in alleviating the irritation attendant on the last stage. Indeed, in some cases of this variety, moderate or even large doses of opium will be found a sovereign remedy towards the close, when excessive irritation and debility exist without any organic lesion: and I cannot illustrate the utility of this drug better in such cases than to compare it to the effect which it produces in the last stage of cholera morbus, sometimes snatching patients from the very jaws of death.

During convalescence from the congestive varieties of the scarlet fever, dropsical effusions are very apt to appear, unless great care be taken to preserve the surface from cold, to keep the bowels regular, and to avoid the exhibition of diffusible stimulants. For sometime after the removal of the con-

gestions, there is a considerable relaxation of the general habit, combined with an irregular disposition to arterial excitement; and any cause which increases this disposition, may occasion an internal or an external dropsy, as the absorbent system seems unequal to counterbalance any excess of the secretions. Indeed, similar precautions to those above stated, ought always to be taken after the decline of all the various forms of the scarlet fever: for even in those accompanied with an increase of heat and of excitement, dropsy is a sequela not unfrequently observed. The excessive excitement of the capillary arteries in such affections, occasions an ultimate loss of tone in the extremities of those vessels; so that the secretory organs seem to admit of a sort of serous transudation, from the augmented impetus of blood which succeeds the stage of collapse, and which accompanies convalescence. But independently of these particulars, there is frequently a tendency left to increased actions about the viscera on the retrocession of the scarlet fever: and hence we sometimes see hydrothorax, ascites, or the affection called hydrocephalus, follow this disease, in combination with clear marks of increased actions in the regions where they are seated. In every point of view, therefore, the common practice of administering excitants during convalescence is most exceptionable. An effort of nature to restore the strength, always follows febrile diseases, and that effort is of itself sometimes so great as to require to be restrained by moderate evacuations; but where it is elevated by measures exciting the heart and arteries, it produces determinations of blood, which lead to dropsical effusions, or to inflammations of the viscera. Even the diet should be mild for sometime after the abatement of acute fevers; and on this account, milk is one of the best articles of food, as it supports the strength, without irritating the nervous, or stimulating the vascular system.

Before concluding the subject of scarlet fever, it ought to be noticed, that most of the older authors are for, and most of the latter against, depletion in the malignant forms; so vari-

ous are the records of human opinion, even on matters of vital importance. The theories of medieval men are constantly changing, but diseases have always been under the same influences; as the planets revolved by the same laws, whatever conjectures were framed respecting them in the lapse of ages. The opinions of men may vary, but the operations of nature are unchangeable. The three powers which affect disease, independent of the physician, are—the cause, the circumstances under which that cause is applied, and the condition of the subject upon whom that cause and those circumstances operate.—Now one and the same cause always produces similar effects; and though the effects are modified by peculiarities of places, of seasons, and of patients, yet still they are reducible to varieties which observe regular laws; and if those varieties had always been marked and separated with sufficient care, instead of having been confounded in general descriptions, what now seems a chaos in physic would have presented an harmonious arrangement. One very remarkable example might be adduced, to show how the same cause produces different, yet ascertainable varieties of disease, and that is the miasm arising from damp or marshy grounds: in one person it occasions an intermittent, in another a remittent, and in a third a continued fever, according to the place where it originated, or the habit in which it occurred; and notwithstanding these types of fever differ among themselves, yet singly considered, they are subject to a surprising uniformity of character. Only attentively examine the effects produced by any other specific cause of febrile disease, and it will be satisfactorily discovered, that each of them admits of a similar uniformity; and indeed it is by ascertaining the nature of each of these effects, that we are principally enabled to deduce precise rules of treatment. It has lately become the fashion to suppose that some diseases have changed their character in our times; but perhaps it would be much more correct to say, that our pathology and treatment of them have become more perfect. With respect to febrile diseases in particular, the various tissues attacked by inflammations

tion or congestion necessarily give a diversity of appearance, independent of merely external signs ; but still it is, generally, inflammation or congestion, and as such requires to be treated according to its degree, and to the habit in which it occurs. The laws of living bodies and of inert matter are most manifestly different, and vital are more varied than physical phenomena in kind and degree ; yet if we were as well acquainted with vital as we are with physical laws, we should probably find a similar uniformity in their nature. Even the epidemical influences of the atmosphere upon the body, like the constitutional peculiarities of individuals, seem to be limited in their modifications of disease, though those modifications and those peculiarities have not yet been well arranged.

In bringing my observations to a close, I must once more repeat, that as the partial application of the active means recommended would not answer in the early stages of the highly malignant scarlet fever, so their use in the last would be inevitably mortal ; and I must, therefore, earnestly caution those who may hereafter try them, alike to avoid their partial and their late employment. Suppose any practitioner were to use one very partial affusion of cold water in the excitive stage of the Scarlatina Anginosa, or rashly to venture upon its general and repeated application in the last stage of collapse, it must be apparent that no correct inference could be drawn as to the powers of that physical agent, because it was only partially employed in the first stage, and upon mistaken principles in the last. The same mode of reasoning may be extended, with equal justness, to the use of venesection and purgatives in the malignant scarlet fever ; if they be partially tried at an early period, they will hardly ever succeed : and if they be rashly used in the last stage, they will be generally mortal. In a word, their general efficacy is only to be ascertained by their fair and decisive employment from the beginning of the disease.

CHAPTER VII.

PULMONARY CONSUMPTION.

By pulmonary consumption is now generally understood, a disease dependent upon tubercles seated in a sellular connecting membrane of the lungs; but under this title it would appear, that different diseases have not unfrequently been included in medical writings. The more effectually to clear the subject from obscurity, it should be noticed, that four affections may be mistaken for the tubercular phthisis, even when they occur in their least complicated forms; and these affections are, namely, chronic inflammation of the bronchia, ulcerations in the trachea, chronic inflammation of the pleura, and lastly, chronic and simple inflammation of some portion of the lungs themselves. A few concise remarks, therefore, shall be made on each of these in their simplest states; and it will afterwards be shown, how they may be combined with the tubercular or genuine phthisis itself.

Chronic inflammation of the bronchia is sometimes the sequela of an acute attack of pulmonary inflammation: at other times it arises out of a common and neglected catarrh in irritable or debilitated habits, or follows an acute attack of bronchial inflammation; and occasionally it is connected with a disorder of the liver, or of some other distant organ. When it exists alone, the symptoms resemble those of an ordinary catarrh for some time; and most frequently the attention of

the practitioner is only excited seriously by their continuing unabated, when they might have been naturally expected to decline. On a close examination, however, the pulse will be found quicker than natural, more especially towards the evening, and the heat of the skin at that time rather above the usual standard, though it varies in the course of the day, and is sometimes below the natural standard. These circumstances, together with the duration and increase of the cough, the frequent expectoration, and the somewhat uneasy nights, for the most part warn us of the establishment of chronic inflammation of the bronchia. Frequently there is some feeling of soreness, or of weight in the chest, and occasionally a transient stitch through the side, but scarcely ever any fixed pain within the breast. The patient can generally take full and repeated inspirations without pain, and lie equally well on both sides, though the horizontal posture usually renders the breathing more uncomfortable, as well as the cough more troublesome for a time; and a request is generally made to raise the upper part of the bed by pillows, that the shoulders and the head may be elevated during sleep. Nevertheless, I have known some patients who found relief from the recumbent posture, on account of the expectoration being then more abundant. The expectoration, however, is the greatest, and the cough the most urgent in the mornings, when there is usually considerable wheezing, until the phlegm is dislodged which had accumulated in the night. More or less coagulable lymph is almost always spit up, sometimes in long thready pieces, but mostly in small glutinous lumps. In the majority of cases, the sputa are at times mixed or streaked with blood, which comes from the small vessels of the bronchia; and at first they are often glairy, somewhat like the white of an egg, they grow opaque as the disease advances, and at length become really purulent. When this chronic inflammation is protracted, and when pus is copiously expectorated, it is attended with nearly as much emaciation and debility as the tubercular consumption; but it sometimes happens that it is not

thus protracted, the supervention of an acute inflammation unexpectedly carrying off the patient. Where it proceeds to an advanced stage, it will mostly be difficult, if not impossible to distinguish it from the tubercular consumption, particularly when it has caused an abscess in the lungs themselves. During the early stage, however, it may be recognized by the wheezing and catarrhal character, by there being less wasting of the flesh and strength than in the tubercular consumption, by the concomitant fever then not assuming the true hectic type, and by the patient being able to draw the breath deeply without uneasiness. From the commencement there is indeed some fever, but night-sweats rarely take place until the expectoration becomes purulent; though the skin is occasionally moist and cold in some parts during the remission of the pyrexia. The face has generally a sickly pallidity in the onset and progress of chronic inflammation of the bronchia, and the lips a leaden or bluish hue; whereas in the tubercular consumption the color of the face comes and goes, and the lips are commonly tinged with a beautiful bright red. In the beginning of chronic inflammation of the bronchia, the hands and feet are often cold, and the temperature of the surface altogether more variable than in the tubercular consumption; and though at that stage of the former, the patient may often pass uncomfortable and unrefreshing nights, yet upon the whole he obtains longer sleeps at intervals than in the latter. From the commencement of chronic inflammation of the bronchia there is most frequently some degree of inflammation in the upper portion of the pharynx; but that inflammation also partakes of the chronic character throughout, the part being of a pale red, over which the veins are dispersed of an unnatural fulness, an appearance almost pathognomonic of chronic inflammation. The cough is generally short, tickling, and dry, in the beginning of the tubercular consumption, when uncombined with any other disease; whereas in this form of chronic inflammation of the bronchia, the cough is deep, and the expectoration free almost from the first, and continues to

be copiously blended with mucus to the last. There is more stuffing, too, about the lungs in the commencement of chronic inflammation of the bronchia and the expectoration affords more alleviation to the cough. It is, besides, accompanied with a greater load, though with less pain in the thorax ; and much less cough generally occurs from a full inspiration, or from turning on either side, than in the tubercular phthisis. But when chronic inflammation of the bronchia is combined with an affection of the liver, or of some other abdominal organ, the patient in general can only lie with any degree of comfort on the right side, or flat upon his back. The quantity of the expectoration, the character of the fever, and the other circumstances before enumerated, will enable the practitioner in the onset, and in part of the advancement, to distinguish this combination of complaint from the tubercular consumption ; while the furred tongue, the foul breath, the unnatural stools, the capricious appetite, the distended epigastrium, and the uneasiness which generally attends pressure on some part of the abdomen, will sufficiently mark it from the simple chronic inflammation of the bronchia first described. Both these varieties of disease may arise after the measles from the influence of cold, or from some disorder in the digestive organs : but they are likewise not uncommon after other affections, which predispose the lungs and the liver to the increased action ; and they may sometimes be directly traced in delicate habits to vicissitudes of the weather, or to errors of diet and too light clothing.

Dr. Young, in a treatise equally distinguished for talent and learning, has mentioned a very simple and good criterion of pus. If a little of the substance to be examined, he informs us, be put between two pieces of plate glass, and, while held near the eye, looked through a distant candle, we shall observe, even in the day time, a bright circular corona of colors, of which the candle is the centre ; a red area being surrounded by a circle of green, and this again by another of red, the colors being so much brighter as the globules of pus are more nu-

merous and more equitable. If the substance, however, be simply mucus, there will be no rings of colors; although sometimes there is a sufficient mixture of heterogeneous particles, even in mucus, to cause a reddish area alone.* But, how useful soever this test be on some occasions, it will not enable us to distinguish bronchial inflammation from phthisis, since pus is alike expectorated in both; and we must therefore have recourse to the rise, progress, and general character of the symptoms, to enable us satisfactorily to make the diagnosis. At the termination of pure chronic inflammation of the bronchia, the capillaries in the mucous membrane of those parts will be found preternaturally injected with blood, and the branches, if traced accurately, filled with pus and mucus.

An ulcer in the trachea may be a consequence of the preceding disease, in which there is generally more or less of increased action on the lining of that part, extending from the bronchia; but it is oftener the result of a separate and insidious inflammation, which arises from various causes, and which at first is denoted by little more than a tickling cough, slight change of voice, obscure uneasiness in some portion of the trachea, occasional oppression in the breathing, and a slow increasing fever. Slight traces of inflammation often exist at the same time, about the pharynx or the tonsils. In the primary stage of the tracheal inflammation, mucus and lymph only are expectorated; yet as soon as ulceration takes place, the sputa are mixed with pus, though in general neither the first nor the last be so abundant as in simple chronic inflammation of the bronchia. Some degree of lassitude and a gradual loss of flesh are now observable, and the functions of the stomach and of the liver not unfrequently become disturbed. In the progress of the ulceration, the breathing grows more uneasy, the voice thicker, and the cough much more troublesome; besides, the patient passes restless nights, and labours

* See p. 27 of A Practical and Historical Treatise on Consumptive Diseases. By Thomas Young, M. D. &c. London, 1815.

under a more manifest fever than before, though it is seldom attended with copious sweats, as in the regular hectic. The body continues to waste; the pulse to rise in frequency, the skin has a sallow, faded hue, and the face is for the most part pale throughout, except when transiently flushed by a febrile paroxysm; but there is rarely the circumscribed patch of bright red on the cheeks with the glistening eye, observable at the exacerbation of the hectic which attends the tubercular consumption. The expression of the countenance, too, is generally more anxious at times than in the last mentioned disease, the spirits more depressed, the mind more irritable, the respiration occasionally more disturbed, and yet no fixed pain in the chest; although an undefinable weight or load is not unfrequently felt near the middle or at the lower part of the sternum, and a hoarse sort of noise is commonly made on taking a deep inspiration. Considerable remissions sometimes take place in this disease, so that one might anticipate recovery; but these are almost always fallacious, the symptoms generally returning with increased severity. In some cases, life is prolonged three, four, five months, or even longer, and in others it is suddenly extinguished by an acute attack, resembling the croup or pneumonia. Two cases bearing the characters of ulceration in the trachea have occurred in my practice, after the measles, and the subjects of both were manifestly of the strumous temperament. One severe instance I likewise witnessed in an old man, apparently proceeding from a large external tumour, which had long pressed upon the wind-pipe: and a few others have been presented to me, which originated from cold, or from the hooping cough, and some of which were connected with the secondary symptoms of syphilis. Of the latter description I have known two examples treated as pseudo-syphilitic, under an impression, that all the symptoms resulted from sympathy with the digestive organs, which were certainly disordered; but so far from being the cause, an accurate inquiry tended to prove, that the disordered condition of the digestive organs was one of the effects of the lo-

cal irritations, and of the general influence of the *veneral* virus. There cannot be the least doubt that certain local affections, originating from disturbances in the digestive organs, do actually attack the same or similar textures as the secondary syphilis; but that these local diseases, taken in all their bearings and extent, assume the *genuine* characters of syphilis, is a proposition contradicted at least by the facts which have fallen under my own observation. The work of Mr. Abernethy, on the constitutional origin of local diseases, is generally allowed to be one of the most valuable which modern times have produced; and if called upon to give an opinion respecting it, I should say, in the language of Bacon, that it deserves to last as long as books last. Yet I cannot but think, that the particular applications of the general principle of the constitutional origin of local diseases, require the utmost care and discrimination; and I am fully convinced, that from an alliance with this excellent principle, the specious doctrine of pseudo-syphilis has gained an unmerited ascendancy over the minds of many practitioners. But, no longer to digress from the original subject, it may be remarked, than when an ulcer in the trachea is *veneral*, the real nature of it may be inferred from the other secondary symptoms of syphilis which are manifest at the same time, as the peculiar, deep sore in the throat, the copper-coloured spots on the skin, or the like; and where such symptoms have been absent throughout, the ulcer will almost always be found to have proceeded from an inflammation of a different kind. The most distinguishing mark of ulceration in the trachea is pain, soreness, or some species of uneasiness referred to a particular part of the wind-pipe, in combination with purulent sputa. But before the ulceration takes place, a local uneasiness, increased by pressure, often marks the existence of a chronic inflammation: and it is of great consequence to attend to this, as it is at first sometimes so slight or so obscure as hardly to arrest the attention of patients, who even then in general spit up some pieces of lymph occasionally. It was chiefly by attending to the local uneasiness,

that Morgagni detected an ulceration of the trachea in a person of distinction, and from this case he informs us that he obtained great reputation when a young man; indeed independently of the minute and accurate detail of this interesting case, no author has given us a better account of the causes and character of ulcerations in the windpipe.

Dr. Baillie mentions, in his excellent work on morbid anatomy, that the pleura appears to be more liable to inflammation than any membrane lining those cavities which have no external opening. In confirmation of this he notices that the chest of any patient, who had arrived at an adult age, can hardly be examined, without some traces of a recent or of a past inflammation being found; and he judiciously accounts for the circumstance, by the free communication of blood-vessels between the external and internal parts of the thorax, by the cold and variable nature of our climate, and by the manner in which the breast is so much exposed, by our dress, to the influence of the atmosphere. If such important observations as these had been more generally regarded, it is highly probable that chronic inflammation of the pleura would not have been unnoticed in the various divisions of our nosologists: indeed I know of no author who has written expressly on the practice of physic, by whom this disease has been described, with the exception of Baglivi, and his account is very concise. Pleurisies, he informs us, are frequently unperceived, because they are painless; and this occasions gross mistakes in practice. In order, he continues, to discover these occult and indolent pleurisies, make the patient lie down on his right or left side: after he has inspired with force, and coughed once or twice, ask him if in breathing or coughing he felt no pain or heaviness in any part of his breast; and assure yourself, that a pleurisy is seated in that place where he feels the pain or heaviness. He concludes by observing, that he has benefitted many patients from the discovery of pleurisies in this way: and certainly his directions, in a diagnostic view, are very judicious, and ought to be followed in all obscure cases.

Chronic inflammation of the pleura, according to my observation, is not uncommon. When the more acute forms of pleuritis are apparently subdued, a low, obscure kind of increased action is sometimes left, which degenerates into chronic inflammation: nevertheless, this chronic is not always the relict or the effect of an acute inflammation of the pleura, as it may arise slowly, without the least dependence on the latter; and though it generally proceeds with its proper characters, yet it is at times suddenly converted into an acute inflammation, from cold, great exertion, or some similar cause. When, however, chronic pleuritis is the relict of the acute, the subject of it does not gradually or suddenly recover his health, as is usual after depletion. On the contrary, he remains weak, and is short of breath in going up stairs, has a degree of slow fever at nights, feels some oppression in the chest on lying down, and his sleeps are generally short, and disturbed. The appetite is frequently bad, or at least very variable: in some cases the tongue is foul, but in others tolerably clean; and the belly is commonly slow, and the urine scanty and high coloured. There is a short tickling cough throughout the day, which is commonly increased for a time on lying down, and often troublesome in the mornings. The patient is almost invariably easiest when sitting still upon the breech, with the trunk supported against a sofa or an easy chair; but ask him a succession of questions, or request him to walk across the room, and the chest will soon begin to heave, and the respiration will be perceived to be much hurried. Place even a healthy person beside him, and on counting the respirations of both, the number of his will be found to be greatest in the minute. If he be requested to take a deep inspiration in the erect position, he can sometimes do it with little apparent uneasiness; but lay him down flat, as Baglivi has advised, and, causing him to fetch his breath deeply, he will be almost certain to complain of pain, tightness, soreness, load, or some species of inconvenience in the chest. His pulse will often be tolerably calm in the morning when he is perfectly quiescent;

but, corresponding in some measure to the respiration, it will be much accelerated by motion. Besides, there is generally a degree of soreness in the integuments of the side affected; in some cases it is exceedingly slight, and in others it is distinctly felt at all times, especially on pressure. Occasionally I have known this sense of soreness, which arises from the sympathy between the pleura and the skin, diffused over a considerable space, so that the patient felt as if he had been beaten by a rod, or as if the side had been bruised. But in the majority of examples, the soreness is limited to a particular part, and it is often so obscure, as only to be experienced on strong fits of coughing in the supine posture. Now and then the chronic inflammation of the pleura is rather denoted by a sort of dragging feeling in the side, always referred to the same quarter, and always attended with more or less cough; and the above feeling is especially liable to occur when the inflammation arises slowly of itself, independent of any acute disease. In such cases, an occasional stitch, or some uneasiness in the breast, and a short dry cough, generally mark the accession of the insidious inflammation; but these are often taken for the mere symptoms of an ordinary cold, as they produce little disturbance in the general health at first, and as they seem to be in some degree under the influence of the weather. But as the disease steals on, some shortness of the breath becomes apparent, the face upon the whole is paler than natural, the temper much more irritable, and the nights are uncomfortable for want of the usual long and sound sleeps. If properly examined, some pain, soreness, or heaviness, may still be detected in the right or left side, with a quickened pulse, and other evidences of an irregular fever; and a greater desire for fresh air is expressed than formerly, but particularly at nights, the curtains of the bed being instinctively drawn open by patients, and the head raised with pillows. The disease now proceeds in a similar manner as when it follows an acute attack of inflammation; and as it daily saps the foundations of life, under the fallacious

covering of general debility, the cough, shortness of breathing, and fever become more troublesome until at last dyspnoea and emaciation are the two most prominent symptoms. Indeed, towards the close of the disease, the breathlessness is most frequently extreme, but great temporary relief is sometimes procured from the use of a swing, and that even where the motion does not induce sickness. The death is often sudden at last, and is almost always preceded by anasarca of the lower extremities.

This affection is principally distinguishable in its earlier stages from the tubercular consumption, by the uneasiness in the side being confined within a certain space, by the gradually increasing difficulty in breathing, and by the common motion of the body aggravating, and by rest alleviating the symptoms; and in the last stages it is to be discriminated by the fever not observing the hectic character, and by the absence of pus in the expectoration, which throughout is usually scanty, and consists of vitiated mucus, when erythritic pleuritis is uncombined with inflammation of the lungs themselves. Where the measles have left a tendency to inflammation in the pleura, this affection is apt to follow them, if children be exposed to cold, or allowed too full a diet: but it is sometimes produced in adults, by the exhibition of diffusible stimuli or strong food during their convalescence from acute pleuritis; and sometimes it directly, though slowly, arises from a blow upon the breast, or from an exposure to intemperate weather. Upon the whole, females have appeared to me more liable than males to chronic inflammation of the pleura; and perhaps this is owing to the mode of dress adopted by the former, which is not only thinner, but which particularly exposes part of the chest. It would perhaps be difficult to find any enlightened country where the dress of females is less suited to the climate, and to the social customs, than in England: and it is a national opprobrium, that the lives of many mothers and daughters should continue to be yearly lost, from the prevalence of false taste and injudicious fashions.

Chronic inflammation of the lungs themselves is not unfrequently the concomitant or the result of the preceding disease. Accordingly I have seen, in morbid dissections the pleura considerably thickened, with an effusion of serum and of some coagulable lymph in the chest, and a portion of the lungs, which had apparently been impervious to the air, converted into a solid and compact substance, not much unlike that of the liver; and whenever this change of structure is effected by inflammation in a particular part, it throws the work of respiration in a proportional degree on the sound portion of lung, and it is sometimes, I suspect, a cause of hæmoptoe by obstructing the pulmonary circulation.(b) Again, in some other instances I have met with superficial abscesses in the lungs, immediately under that part of the pleura pulmonis which had been inflamed. In a case of this kind, which came under my care last year, the patient was afflicted with chronic inflammation of the pleura for nearly twelve months: and he never expectorated any pus, until a few weeks before his death, and then only in small quantities. On examining the body, no tubercles were found in the lungs, but a common imposthume existed under a portion of the pleura, which bore strong marks of a previous inflammation; and there was some water in the thorax, with shreds of coagulable lymph floating in it, and a

(b) This may be, and no doubt is the case in some instances, but have we not good reason to believe that hæmoptoe is caused, many times, by some peculiar condition of the capillary vessels of the lungs, independently of any *direct* influence which the heart may exert upon that system? We know that some discrepancy often times, does exist between the action of the larger arteries and veins, the former being sometimes overloaded while a deficiency flows in the latter, and *vice versa*; now this unquestionably is true also of the capillary arteries and veins, and may not one or both of these systems of vessels become so much relaxed or some way diseased, as to pour out their contents, uninfluenced by any increase of action in the heart or partial obstructions from local disease? This seems to be the case in passive haemorrhage from the gums, nose, bladder, &c. and analogy would lead us to conclude that the same might be true in regard to haemorrhage from the lungs.

thick layer of the same substance over the surface of the right lung. Chronic pleuritis most frequently terminates by hydrothorax, which, together with the febrile irritation, wears out the strength at last. But when inflammation of the lungs is present at the same time, and when that inflammation ends in an abscess, the disease is of shorter duration, and then it very strongly resembles the genuine phthisis in the last stage, the formation of matter converting an irregular fever of irritation into the hectic. In examples of this nature, the inflammation of the lungs is for the most part simply an extension of the increased action originally seated in some part of that reflection of the pleura, by which they are immediately invested; and even where the chronic inflammation commences in the body of the lungs themselves, I am not aware that a nosological distinction can be found of any *practical* use, when the inflammation is of the same nature as that which attacks the pleura. Yet as chronic inflammation of the body of the lungs does occur independently either of chronic inflammation in the pleura, or of chronic inflammation in the bronchia, it may not be amiss to say a few words on the subject, by way of exciting inquiry.

The abscess which follows acute inflammation of the lungs is attended with a distinct and impressive concourse of symptoms; whereas that resulting from a chronic and simple inflammation takes place without many of what are deemed the diagnostic signs of such an event. On the examination of the bodies in two cases, where suppuration of the lungs had not been suspected till a short time before death, an extensive abscess was found in the left lung of one, and two small ones in the right of the other. Both these cases had been ushered in by a lassitude, without any strongly marked symptoms of pulmonary disorder. About two or three weeks from their commencement, the disease in both put on the character of an irregular ague; for cold, hot, and sweating stages returned at intervals for more than a month, and these were succeeded at last by a confirmed hectic. The appetite remained tolerably

good in both cases, and the sleep for some time was often long and sound, and the respiration, upon the whole, far less disturbed than might have been expected. In another example, in which the fever from the first to the last observed the remittent form, suppuration had taken place in the liver as well as in the lungs; and yet the symptoms were such as to make me suspect that the chief seat of the disease was in the glands of the mesentery, which were found quite natural. These cases are surely sufficient to put practitioners on their guard in respect to those fevers assuming the intermittent or remittent features: as such fevers may occasionally arise from the formation of matter about some of the vital viscera, but more especially about the lungs and the liver. Some facts have occurred which would incline me to believe, that the chronic inflammation of the lungs, and a consequent abscess may occasionally arise from coagula of blood retained after an hæmoptoe; and I knew one instance which dissection showed to have arisen from a deposition of calcareous matter, which had probably been secreted from the bronchia. Yet I cannot help remarking, by the way, that my own inquiries lead me to infer, that calculi formed in the pulmonary system are generally not so dangerous as Morgagni supposed, who concludes, from an elaborate account of them, that they are oftener dangerous than the contrary; whereas from my own experience, and from that of some friends, a directly opposite inference might be drawn. But this is a point which could only be settled by an extensive collection of facts. It is a little remarkable, that in three cases where small calculi were expectorated, the digestive organs seemed disordered, indications of very great acidity existing in the primæ viæ. All these patients had a short, tickling, troublesome cough, which in two were apparently much relieved by the use of magnesia; and in the third, in whom the hepatic secretions were vitiated, it yielded rapidly to small doses of calomel, and an occasional dose of an infusion of columba, with the carbontae of potass. From a review of these three cases, might it not appear, that the secre-

tion of calcareous matter in the lungs, or from the bronchia, is connected with disturbance in the digestive functions? And does not this suggestion derive some support from the known fact, that the deposition of calcareous matter in other parts of the body is often seen in conjunction with some disorder of the stomach, liver, or intestines? Finally, however, to advert to the original topic, I know of no symptoms which can enable us to say when chronic inflammation of the lungs is, and when it is not, connected with chronic inflammation of the pleura; and if we possessed any facts enabling us to determine this point, still they would be of little practical utility, since the treatment must be similar, whether simple or combined.

In his valuable work on consumption, Dr. Duncan, senior, has prepared the way for more correct and comprehensive views on the formation of pus in the lungs, by considering it the result of catarrh, as well as of acute inflammation, and of tubercles; whilst Dr. Philip, in an able tract, has decidedly fixed the attention of the medical public on the important connexion between hepatic and pulmonary disorder. Still there is need of accurate histories and arrangements of some chronic affections which resemble phthisis. It is evident, that under the term phthisis, diseases very different in kind have been comprehended; and it would obviously lead to improve the treatment of those diseases were their respective causes and nature clearly ascertained and defined.

According to my observations, the true tubercular phthisis only occurs in habits of the strumous temperament; and it yet remains to be proved, whether tubercles be ever formed in the lungs, without an hereditary predisposition to them. (y) Generally speaking, the strumous temperament appears under two

(y) That tubercles never exist "without an hereditary predisposition to them," is difficult to determine, but certainly we see no reason why the system of an individual not predisposed, might not by circumstances be so affected as to give birth, (if I may be allowed the expression) to tubercles.

modifications, which require to be discriminated. The first of these is found in those who naturally have pale skins, loose, flabby fibres, and a sluggish pulse: and the second, in those who have ruddy complexions, firmer fibres, and a brisk circulation. Subjects of the first modification have seldom much corporeal vigour or mental vivacity, whereas those of the second often possess both. But there is one thing common to these two modifications—an unusual irritability of the capillary arteries; an irritability which is perhaps one of the most essential peculiarities of the strumous temperament. The actual seat and developement of serofila may partly depend upon this irritability being more abundant, from their construction, in some organs than in others, and partly upon the force of morbid impressions being mainly directed to those organs; hence, in one patient the membranes or ligaments investing the bones will be attacked, in a second the glands of the skin, in a third the mesentery, and in a fourth the lungs, according to the state of each organ, and to the nature of the exciting cause. Now the predisposition to the genuine phthisis, I suspect, chiefly consists in an unusual irritability in the capillary arteries in the cellular connecting membranes of the lungs; and wherever this predisposition exists, any cause agitating or stimulating the lungs may lead to tubercles, and of consequence to phthisis; but where this predisposition is absent, it is probable that no such cause can ever excite, much less produce the disease in question. The tubercles themselves are, perhaps, formed by exudations from the minute vessels in the cellular tissue of the lungs; and these exudations, though becoming partially organized, may be considered as almost extraneous substances at last, from the interruptions which they give to the pulmonary circulation, and from the local irritation which

There must some time have been a beginning, and I know of no reason, that should lead us to believe their origin congenital, any more than that particular circumstances in adult age brought them into existence.

they induce.* On examining the bodies of young children, I have sometimes found tubercles or the germs of tubercles, in the lungs, where no signs of pectorial disease had previously existed: and I have met with them likewise in adult lungs, where there had been no sufficient grounds for suspecting them during life. Such occurrences have led me to suppose that tubercles may sometimes be congenital, and that at other times they are the slow and unsuspected products of later periods. In many cases, tubercles of the lungs remain long latent, before the evidences of disease become strikingly manifest; and what is frequently supposed the commencement of phthisis is but some local or constitutional irritation exciting previously formed tubercles into inflammation or suppuration. But as the causes which thus excite tubercles already formed are also most likely to produce them in the phthisical habit, it is doubly needful to be acquainted with those causes: first, that the formation of tubercles may be warded off in suspected constitutions; and secondly, that their excitement may be prevented where they really exist. The causes of this kind, are, local irritations within or without the chest, certain morbid states of the skin, and those circumstances which act generally by breaking up the strength of the system. Unless, however, the true phthisical tendency co-operate, these cases will not excite the tubercular composition. As if to guard the body or the lungs against disease of irritation, nature has generally made them but little sensible; and it is only perhaps in peculiar exceptions from this structure that such affections invade their substance.

That chronic inflammation of the bronchia, of the trachea, of the pleura, and of the lungs, are not essential to the tubercular phthisis, we have sufficient proof, in their existing without that distemper, and that distemper without them; and in

* Broussais, an ingenious French writer, supposes that what we call tubercles are merely the lymphatic glands of the lungs, diseased and enlarged by some adjacent irritation, in the same way as happens in other parts of the body, and many other diseases.

speaking of them, and of other local and more distant irritations, we must still return to this pathological principle, that they merely become exciting causes of genuine phthisis, in subjects whose lungs are predisposed to it from original organization. (v) The preceeding affections of the chest are very common, as we are surrounded by the occasions which call them into existence: the hereditary tendency, also, to phthisis is so common in this country, that there are perhaps few families where it is not found; and hence these affections, favoured by this predisposition, so often become the excitants of this wasteful malady. When such affections occur, therefore, the sooner they are removed, the better, since they are not only dangerous in themselves, when uncombined with any other disease, but since their removal may prevent an attack of phthisis itself. Precisely the same mode of reasoning may be applied to certain disorders of the stomach, liver, spleen, bowels, and urethra; for each of these may become an exciting cause of phthisis in particular constitutions, though in ordinary ones they take place separately and independantly. Sir Richard Blackmore divides pulmonary consumption into the original and the secondary. The original, to use his own language, is that consumption the seeds of which are either complicated with the stamina vitæ, or afterwards formed in a degenerate and depraved blood: the secondary is that consumption induced by peripneumonies, measles, malignant fevers, hypochondriasis, jaundice, lues venerea, fistulas, ulcers in the guts, and various other diseases which, as he figuratively remarks, end in tubæ of the lungs, as numerous streams run into some ample river, and lose their denomination. In the second book of his work relative to the seats and causes of diseases, Morgagni shows, that the causes of affections of the

(v) Though this gives us a clear idea of our author's views on this point, it in no way helps to settle the question alluded to in a preceeding page and note. The reader will therefore bear in mind that this interesting topic is still open for discussion.

lungs may not only exist in the thorax, but in the neck, in the head, and in the belly ; and he commends Galen for having expressly taught, that certain disorders of the stomach, liver, and spleen, disturb the organs of respiration. Moreover, he observes, that in other complaints, as well as in those of the chest, the cause which really belongs to the belly is often wrongfully ascribed to the thorax, on account of practitioners not knowing or not considering the height to which the upper cavity of the abdomen and its superior viscera penetrate within the diaphragm. Indeed, in different places, he lays considerable stress upon the connexion between the liver and lungs, and has given some dissections in which both were found in a morbid state : yet he has not carried the doctrine so far, nor illustrated it so well, as more recent writers of our own country ; and too much praise cannot be given to Mr. Abernethy, and Dr. Philip, for the lights which they have thrown, from opposite points, on this interesting subject. In a proper habit, phthisis is more liable to be excited by affections of the liver, than of any other adjacent viscera, but it sometimes supervenes an enlarged spleen, obstructions of the mesenteric glands, and irritation in and about the rectum. Disorders of the liver and spleen may in some measure act mechanically, by irritating the lungs from their pressure against the diaphragm ; yet at as this cannot be said of the other textures specified, we must look to some other cause to explain their influence upon a distant organ. One local disease may produce another by causing a general irritation in the nervous system, an irritation which re-acts upon and excites the whole vascular system ; and the latter, in its turn, operates morbidly and manifestly upon some part where a previous, though a latent fault had existed.

In some patients predisposed to phthisis, I have seen a short tickling cough arise and disappear with the primary symptoms of syphilis ; but in others, who had exposed themselves to cold, or who had taken mercury injudiciously, I have known the cough advance until suppuration of the lungs took place. Again, in constitutions of a similar cast I have witness-

ed a train of dyspeptic symptoms from a stricture of the urethra, and these at last were succeeded by tubercles of the lungs. From the consideration of such facts, therefore, we cannot be too careful in speedily removing any irritation from a phthisical habit; for even if that irritation should not at first be dangerous in itself, it may in the end become highly so, by implicating the pulmonary organs in disease. But before concluding this part of the subject, I cannot refrain from remarking that there is something peculiar and insidious in the nature and effects of strictures of the urethra. They are sometimes the unsuspected causes of gleets, of ulcers on the penis, enlargement of testes, febrile paroxysms, and of abdominal and thoracic complaints. A patient may have a stricture for years without suspecting it; yet during this period he shall be liable to some of the affections just mentioned, which can hardly ever be cured without removing the original cause by the introduction of bougies. In particular, sometimes an intimate sympathy exists between the mucous membrane of the urethra, and the same tissue of the intestines and of the bronchia; so that I have met with instances of a chronic disorder in the mucous membrane of the urethra, which were followed by morbid secretions of the bowels and bronchia; and the disease has at last assumed the character of chronic inflammation of the bronchia, with purulent expectoration.

Certain conditions of the skin are more frequently connected with the rise and progress of phthisis than perhaps any of the above noticed irritations; and it is to this organ unquestionably, that we must often look for the commencement of those morbid movements which ultimately undermine the fabric of the lungs. We cannot put a needle into any point of the skin without drawing blood and exciting pain, which demonstrates it to be an extremely vascular and nervous tissue. In fact, we may consider it as an expansion of larger or minuter vessels and nerves, so completely are they interwoven with every fibre of its substance. From such an union of two distinguished textures, one might naturally suppose the skin

a most important organ; as physiology has shown, that to those parts, the most highly and perfectly organized, the most important offices of the economy are committed. The whole extent of the skin is perpetually exposed to the action of surrounding agents, and between it and the central parts an intimate sympathy exists, but especially between it and the lungs: for not only do the skin and the lungs mutually compensate a deficiency or an excess in their respective exhalations, but they are likewise closely connected by a free intercourse of vessels; so that when a reduced temperature diminishes the action of the skin, it at once increases that of the lungs, and the contraction of the vessels on the former in some degree congest those of the latter. Where is pulmonary consumption unknown, and where does it abound? Is it not unknown in most of the warm and temperate, and does it not abound in most, if not in all of the cold and variable climates? In good warm climates the action of the skin is constantly excited, and that of the lungs is proportionably diminished; and on this account we there find diseases of the surface very common, and those of the lungs comparatively rare. In cold and variable climates, on the contrary, the action of the skin is diminished, and that of the lungs of course augmented in a direct ratio; and therefore in them this increase of labour renders the latter organ much more susceptible of disorder than the former; as it is a pathological law, that the more any part is exercised, the more apt it is to be diseased (x). What are the remedies, generally speaking, which we find most efficacious in warding off the threatenings of genuine phthisis? Are they

(x) We must take the liberty to call in question this remark, for if it be true we must acknowledge an error of some years standing. In opposition to it, our opinion has long been, that the more any part is exercised, the more healthy it becomes, and the more able it is to bear that exercise, providing always, that the labour put upon a given part is not sufficient to derange its functions, or disturb the healthy balance between it and the rest of the system. This it seems to us, is true in regard to the skin, the muscular system, and to every other part separately or combinedly.

not chiefly those which act upon the skin, as blisters, emetics, a regulated temperature, and more especially a change to a warm climate? Who are the persons most liable to tubercular phthisis? Those who have delicate skins and who are exposed, without sufficient clothing, to the vicissitudes of the weather. Nay, if we go more minutely into this subject, we shall find, that many diseases of the skin are incompatible with those of the lungs; that is to say, certain excitements of the first organ often prevent dangerous affections of the last.—Hence it is, even in Great Britain, that those persons afflicted with cutaneous diseases are the least obnoxious to pulmonary consumption; but let their cutaneous diseases be ineffectually cured, and they often afterwards fall victims to suppuration in the lungs, as I well know from personal observation. Besides, in some instances I have seen coughs of a phthisical tendency disappear on the coming out of a spontaneous eruption of the skin; and I have occasionally seen a similar effect from pimples artificially induced on the surface by an irritating unguent. Phthisis, too, is so apt to supervene those fevers which are attended with affections of the skin, that too much care cannot be paid to patients in a state of convalescence; for if they should be ineffectually exposed to a cold or variable atmosphere before they may have acquired their full vigour, they will be very liable to lapse into pulmonary consumption. Whatever might be their speculative notions, the ancients certainly paid far more regard than the moderns to the skin in pulmonary complaints. We accordingly find, that Celsus recommends several ulcers to be made in phthisis, and directs the employment of frictions; whilst Aëtius, carrying the practice still further, almost covered the skin with issues, both in that disease and in asthma. Similar methods of treatment seem to have prevailed for centuries, and only fell into disrepute on the decline of the humoral pathology; as in the ceaseless changes of human opinions many estimable things have been undistinguishably condemned, with the absurdities upon which they had been accidentally established. The con-

nection, through the medium of nerves and of blood-vessels, phthisis and the skin, appears to me a subject of vast importance in a pathological and practical view; and I could earnestly entreat practitioners to investigate it narrowly, as they value the vital interests of society, and the advancement of the medical art. An immense majority of patients attribute the origin of phthisis to cold, and can reconnt the circumstances under which they were exposed to its influence. If we accurately trace the history of such cases backwards, we shall invariably find, that the functions of the skin were first disordered, and that they continued more or less so during the whole attack; the surface being at first chilly, with a diminished perspiration, and afterwards chilly and hot alternately, with irregular returns of dampness and of dryness. Nay, what are the colliquative sweats in a confirmed phthisis but an increased action of the skin to compensate the interrupted functions of the wasted lungs? For a certain portion of carbonic acid gas, and probably of other fluids, is to be thrown out of the system, and as the lungs cannot then completely perform their wonted share of the work, they are assisted in their office by the skin. It were needless to tell us, that these sweats exhaust the strength of the patient, for it is readily admitted that they do; but they constitute the best natural mean of removing an immediate evil—the excessive accumulation of noxious and excrementitious matters in the body. This is not merely a speculative opinion; it may be proved by the test of experiment. If by any measnre, the colliquative sweats be checked in the last stage of phthisis, the lungs invariably become more oppressed, because a labour is thereby thrown upon them, to which they are incompetent. Nor does the consequence cnd here; for if the lungs be not relieved by a copious flow of urine, a colliquative diarrhoea is produced, and the patient may sink with rapidity, if the sweats should not be restored. The colliquative sweats in the last stage of pulmonary consumption can only be moderated with safety, by exciting a flow of urine; for the kidneys form a sort of intermediate ap-

paratus between the lungs and the skin, and on certain emergencies partly or wholly compensate, by various changes of action, any disturbance in the operations of either of the latter. Hence, most affections of the chest are alleviated by a free secretion of urine.

If the skin, as is indisputably the case, be very often concerned, intimately concerned, in the pathology of phthisis, it obviously follows, that upon this principle preventive measures might be adopted. The sailors, who trade along the northern coasts of England, might at first sight appear to be liable to attacks of phthisis at sea, as they are much exposed there to the severities of the weather; and yet I have hardly ever been able to trace the origin of this distemper, in such subjects, to the effect of cold when they were actually at sea. This power of resisting the exciting causes of pulmonary consumption in so peculiar a situation, I am inclined chiefly to attribute to the flannels with which those men cover the surface, and to the woollen dresses which they wear when on ship-board: and this opinion has been the more strongly impressed upon me, by having ascertained that when they do actually become consumptive, the attack may almost always be traced to an imprudent disuse of their flannels while on shore, together with the influence of dissipated habits. But it ought to be observed, that though the dress of sailors be warm, it is also composed of such light materials as not to fatigue or exhaust them by its weight, or by its increasing the perspiration too much; and I am convinced, that many persons waste their flesh as well as their strength by wearing too great a quantity of clothing. It is, therefore, of great consequence, as a preservative of the health, to make the clothing light as well as warm; since its principal utility consists in preserving an uniformity of the animal heat in all parts of the system. If any practitioner attend to those phthisical cases which fall under his immediate inspection, he will find, that most of them exist in patients who had been careless about their clothing: if he extend his observations still further, he will be satisfied, that many persons,

having a constitutional tendency to this disease, attribute their exemption from attacks of it to the constant use of a general covering of flannel or of worsted hose ; and a minute inquiry into the history of these cases will generally confirm the conviction, which has thus resulted from an experience of their own feelings. Some hints were thrown out, in a former page respecting the insufficient protection which the dress of females affords to the surface ; and it may also be observed, that even the common dress of men is not an adequate security, where there is the least tendency to any thing like phthisis. In short, in such a changeable climate as ours, every body should wear flannel or fleecy hose next the skin ; and persons of the higher class should be mindful to make their evening correspond to their morning dress, in point of warmth. In autumn, winter, and spring, the greatest care should be taken as to clothing, the atmosphere being then most chilly and changeable. Yet even in summer, the lighter flannel or worsted hose should generally be worn, more especially by the delicate ; for even at that season we often have a considerable range of the thermometer in the course of the day, by which we are apt to be chilled after having been heated, if we wear linen next the surface. There are, however, some irritable persons who cannot wear flannel next the skin, from the uneasiness which it excites ; and in such, thin wash leather will be found a most excellent substitute, as it warms without irritating the skin. Indeed I have known several patients, especially females, give the decided preference to the leather, believing that it kept the heat of the surface more uniform than flannel. So repeatedly have I seen the advantages of the mode of clothing here recommended, that I could wish it were universally adopted in this country, but particularly by females, whose natural delicacy renders them less competent to resist the vicissitudes of the atmosphere.

The dress of females in particular is an inadequate security against the weather at all seasons, but especially in the winter and spring ; since it is not only far too thin in the mornings,

when the arms, breast, and neck, are covered, but it is still more so in the evenings, when the neck is entirely, and the arms and breast partly exposed. It is surely a great defect in education, that young women should be taught such an unceasing regard to the decoration of their persons, and to the extreme polish of the mere exterior; for by an adherence to this system, simplicity of manner, sincerity of mind, and even health, are often wholly sacrificed. Most females should wear a chemise and drawers, of light flannel, with warmer stockings and stronger shoes than are worn at present. Between the feet and the rest of the surface there is a surprising sympathy, so that if the former be cold, the whole skin is apt to be affected as to temperature; and hence may be explained, from the nervous and vascular consent between the skin and the lungs, the known frequency of coughs from coldness of the feet. In wet seasons, both delicate men and women should wear leather clogs over their shoes, as they are exceedingly useful in keeping their feet dry and warm. By the adoption of this simple expedient, I have known some persons escape coughs, who had previously been liable to them from having had their feet chilled through their shoes in damp weather.

The universal use of linen in modern times has largely contributed to promote personal cleanliness, and to gratify those feelings of animal pleasure which are connected with cleanliness. This observation, however, is only applicable to the higher and middle orders of society, for among the lower, linen is generally worn until it be covered with dirt; though it is much to be regretted, that in many large towns, but especially in London, the poor, who live so much huddled together, are by no means sufficiently well supplied with water for the purposes of washing their houses and clothes. If among the labouring classes linen shirts were laid aside, and flannel ones substituted, a great improvement might be effected in cleanliness and health; for as the latter are cheaper, they might be more frequently changed, and the men, by resisting cold bet-

ter, would not be so subject to those chills which follow hard labour when linen is worn next the surface. When the clothing has once been made suitable, so far from advising persons in general to shun the vicissitudes of the weather, I would advise them to expose themselves, that they may be strengthened from the force of habit against surrounding circumstances. It were indeed folly on most occasions, to shrink from an encounter with those things which our situation has rendered in some measures inevitable, but it is always better to meet them with every possible advantage on our side: and although the most fearless would not be so weak as to reject the use of weapons to parry an immediate attack upon life, yet many sacrifice that life through a neglect of common precautions which our climate requires. People who follow sedentary employments within doors are most liable to be affected by the weather when they go abroad; and those on the contrary are the least liable to be affected by it who work in the open air, if they be properly clothed. The stronger persons are, the more successfully can they resist the changes of the atmosphere: but even the safety of them would be increased in the main by protecting the skin with some bad conductor of caloric; and as for the weak of both sexes, they are exposed to perpetual perils without such an additional covering. From the little regard which many medical writers seem to pay to the skin, one might almost suppose that they considered it an insensible envelope, somewhat like the outer bark of a tree: but I must again repeat that it is an organ of vast importance, hardly any morbid phenomena occurring in which its functions do not more or less participate; and this is the case, not only in the human, but in the brute economy, as any one may satisfy himself by marking the disease of man and of the lower animals.

For some years past, I have observed how boys naturally delicate often improve in health and strength, by following some laborious occupation in the open air. But this favourable change has been most apparent in some brought up as ship-carpenters, whose work is by no means light; and I have been

informed by an extensive ship-builder, that most of his apprentices, who had been previously weak, greatly improve in strength from their employment, provided they be not worked too hard. From these circumstances it might be reasonably imagined, that those children or young persons who show much delicacy of constitution might be rendered much more robust by a regular training in some corporeal exercise; and by this means become far less prone to those diseases which arise out of general debility, or which are connected with an incompetency of the natural powers to repel the impressions of our trying atmosphere. If the children of a delicate or strumous stock were properly trained up as to exercise and temperance, there would probably be much less disease in general, and of consumption in particular; and by directing the minds of youth at the same time to intellectual objects, much of that dissipation and frivolity might be done away which now so frequently disappoints the expectations of parents, and destroys the morals or health of their offspring.

As a preventive of morbid conditions of the skin and of the lungs, I would mention the maintenance of the tone of the superficial vessels; and I do firmly believe, from repeated observations of its effect, that the almost daily use of the shower-bath, or cold ablution of the skin, is one of the best preventives of pulmonary consumption. In all cases where it is practicable, it is better to employ sea than spring water; and when the former cannot be obtained a little common salt may be added to the latter, by way of stimulating the skin. In general the water should be about the temperature of 90° of Fahrenheit's scale, when the shower bath is first used; and it ought gradually to be brought down to 60° , at which point it may usually be continued the whole year round. But there are subjects who may bear it at last a little lower than 60° , and there are others who require it to be always a little higher. The exact point, however, will be easily ascertained by the feelings; yet, as a general rule, it will be safer to have it above than below 60° , in delicate constitutions. On the employment of the shower-bath,

the head ought to be completely covered with an oiled silk cap, to keep the hair dry ; and immediately after it, the skin should be rubbed with coarse flannels, and a little warm tea or coffee taken as soon as possible. It is surprising how refreshing this procedure is, how it braces the whole animal fibre, and how light and elastic it renders the spirits ; but its grand influence is in giving an energy to the cutaneous vessels, which enables us to bear without injury the changes of the atmosphere ; and hence those persons who accustom themselves to it, are not only less liable to consumption, but to all sorts of visceral inflammations or excitements. The prevalence of congestive and inflammatory diseases might be greatly lessened in this country by the general and proper use of tepid and cold baths : and the legislator who should procure their erection for the public benefit, would deserve the gratitude of the present and future times. But in defiance of all that we can do, still pectoral and other diseases will result from the great changes of temperature which our climate undergoes ; and as to the variations in the densities of the air we have no power over them ; although pressing upon the surface of the body with different forces, they must occasion correspondent distentions, or contractions of the internal vessels. This is a topic to which medical writers have not sufficiently adverted : yet there can be no doubt, that many internal diseases are partly dependant upon the alterations in the density of the atmosphere ; and hence certain persons are like barometers, constantly changing with the weather.

Though loss of flesh and strength sometimes mark, as its pure effects, the approaches of phthisis, yet it cannot have escaped the observation of any medical man of experience, how very prone certain subjects are to tubercular phthisis from those circumstances which directly break up the general strength.— Among the ordinary causes, therefore, of this complaint may be enumerated—various diseases, great fatigue of body or anxiety of mind, immoderate courses of mercury, excessive venery, improper use of vinous or spirituous liquors, an indigestible, irregular, or very spare diet, sedentary employments, the giving of

suck too long, and copious losses of blood. Respecting each of these a few remarks shall be given, which may tend to illustrate the operation of all similar causes.

Any class of diseases which produces general debility may lead to pulmonary consumption, and the greater the debility the more is commonly the risk of secondary disorder: for in cases of extreme weakness, the vascular system is highly excitable from nervous irritation, this reaction may excite a predisposed organ into disease, especially if aided by diffusible stimulants. Besides, it was before shown that, in such examples of universal collapse, it is in the minute branches of the arteries that the circulation is more particularly liable to be disturbed. If a tendency to phthisis, therefore, had previously existed, the capillaries of the cellular tissue of the lungs will be now most fitted for its excitement or production. It has always appeared to me one great advantage of the depletory plan in the early stage of fevers, that patients are not only far less liable to relapses, but likewise to the supervention of chronic diseases, than under the old stimulant treatment. It is unquestionably true that recoveries from fever have taken place under the protracted and precarious exhibition of excitants: but in almost all of such cases, which have fallen in my way, chronic inflammations of some of the viscera have followed: and phthisis has been the most common, which however will sometimes succeed after the best measures, in cold weather. Perhaps in civilized society, no human being is born with all his organs in a perfect condition. Some local weakness or other probably always exists in so complicated a machine; and when the balance and harmony of health are disturbed by any general shock, the local weakness is then most liable to be apparent. *Raro quisquam non aliquam partem corporis imbecillam habet,** is an observation which Celsus made about two thousand years ago; and as it is founded on nature, it will be as immutable two thousand years hence, as at present, so superior is fact to conjecture. Whenever the body then, has been enervated by disease, we should be very attentive even on the decline

* Lib. I. cap. iii. p. 20.

of the disease, and the more so, if there be any hereditary predisposition; because an improper diet, a neglect of the bowels, or an incautious exposure to the air, might be followed by phthisis, or by some other affection. Under such circumstances it is not so easy, as at first sight appears, to make the diet exactly suitable to the state of the constitution. If it be not sufficiently nutritious, the nervous irritation and the vascular excitability are increased; if it be too nutritious, the already commencing re-action may be dangerously augmented; and the only safe course which we can pursue is between these two extremes. It is impracticable at once to raise the body from the collapse of disease to the energy of health; and every attempt of this kind arises from a disregard of the most obvious laws of the animal economy, and is always attended with danger. The human body will bear a great deal if it be gradually done; but it is often destroyed by too great and sudden shocks or changes. The appetite should never be pampered either in sickness or in convalescence; and when the alvine evacuations are not proportionate to the ingesta, a laxative ought occasionally to be exhibited. After recovery from fevers and other diseases productive of debility, phthisis frequently supervenes from too sudden and free an exposure to the atmosphere; but this is more particularly the case after the measles, which so often leave much general debility, and so strong a tendency to pectoral affections, from the previous excitements of the lungs or its appendages. On the abatement of all distempers which have greatly reduced the constitutional vigour, the clothing should be warm for sometime afterwards, and the utmost care taken to guard against the influence of the cold. The whole circulatory system remains long in a vacillating state; and as the superficial vessels are especially weakened, so the shock of external impressions is easily communicated to the internal parts. But the above precautions in respect to regimen, with the occasional use of the tepid affusions, will generally prevent secondary diseases; and where a removal into a pure and temperate air can be accomplished, it will always most power-

fully contribute to restore the general strength. When, however, in defiance of these preventive measures, any signs of visceral excitement shall appear, the employment of moderate evacuants, with an antiphlogistic regimen, will be highly necessary; but in every instance of this sort, the attendant irritation should be allayed by the warm bath, or by occasional opiates; and if these expedients only be recurred to promptly, they will frequently remove an immediate, and prevent an ultimate disease.

Bodily fatigue seldom induces phthisis, unless it be long or repeatedly endured, or unless it be connected with much anxiety of mind; and under either of these circumstances, it may so break up the general health, as to lead to this disease.—Accordingly I have sometimes seen it follow hard exercise on horseback, a long journey on foot, indiscreet trials of strength, and the like, especially when undertaken in intemperate weather. Nature intended the heart to beat, and the blood to revolve at a certain rate; and though provision has been made for great occasional exertion, yet that exertion cannot be often renewed without risk. In the first place, it hurries the circulation impetuously through all the vital organs, so that if any one be weaker than the rest it is liable to suffer; and in the next, it is always succeeded by more or less collapse, which leaves the system open to the operation of many other causes of disease. Disorganizations of viscera are often occasioned by an excess of corporeal labour. Yet nature has so constituted us, that health cannot be preserved without a certain measure of exercise; and if we could always observe a medium in that respect, our lives would be more easy and protracted. But the wants, forms, and duties of civilized society are frequently making greater demands upon the voluntary powers that can be safely supplied; and the re-action thereby induced on other parts of the body often tends either to disorder their functions, or to derange their structure. The persons whom I have known most frequently to fall into phthisis from fatigue, were delicate females who performed the offices of nurses, and

those who visited night after night in fashionable parties. Urged by that sensibility, which is so conspicuous an attribute of the female mind, young women often nurse their sick relatives or friends and not unfrequently carry their attentions so far as to wait on them in the night as well as the day. Their feelings, too, are often strongly excited by the sufferings which they witness, and thus solicitude of mind is brought to co-operate with the corporeal fatigue. The consequence often is, that their own health begins to decline; and if they should happen to have any tendency to plithisis, they are almost sure to become its victims. Whenever, then, there is a known or suspected predisposition to consumption, such powerfully exciting causes as these should be avoided as much as possible; and the more so if the patient, with whom the predisposed person resides, labours under the true tubercular consumption; as some facts have occurred to me which render it probable that purulent effluvia of the lungs may excite the disease in a peculiar habit. Nothing breaks up the strength sooner than the want of sleep at those hours which nature obviously designed for repose; as they are marked, as well by the regular return of day and night, as by our own feelings, before perverted by artificial habits. Where the least suspicion of a phthisical taint exists in any family, the members of it should studiously avoid visiting at nights, and observe the utmost regularity in their regimen. Few things contribute so much to preserve health and to prolong life, as going to bed early and rising early. On inquiry it will be found, that most of these two circumstances; nor can we be surprised at their influence, since they are so consonant to nature, and since they are generally united to a train of temperate habits. Literary and scientific men, whose modes of living in other respects are so different, yet often resemble fashionable people, inasmuch as they sit up when they ought to have been asleep; and as their pursuits are most truly fascinating, and as the term of life seems almost too short for the accomplishment of great works, we can-

not wonder that they should wish to employ some portion of the night, the silence of which is so suitable to reflection. Yet, in doing so, those who have an hereditary predisposition to phthisis, will not in the end lengthen, but on the contrary shorten the period of their labour, and even of their existence; and the young in particular will be apt to sink prematurely under studies pursued at nights, and therefore their aquirements should be made in the day-time.

In various places I have spoken highly of the efficacy of calomel as a febrifuge purgative and alterative, and in various places shall have occasion to do so again. But it has been distinctly noticed, and shall again be distinctly noticed, that this preparation can only be advantageously given in certain morbid states of the system, connected with arterial excitement, or with venous congestion; and I am well assured by observation, that much mischief accrues from the use of mercury, without due consideration of the circumstances under which it is administered. It is a common practice with many, to prescribe long courses of mercury for almost all chronic diseases of the internal visseera; and the result not unfrequently is, that the strength of the constitution is shaken to its very centre, while no favourable impression has been made on the topical disorder or derangement. Nay, even in chronic affections of the liver, this medicine is far too indiscriminately and profusely given; but the talent and industry of Dr. Farre promise in a great measure to correct this evil, by distinguishing those affections more accurately than had hitherto been done. Yet if there be any one disease in which mercury is more abused than in another, it is undoubtedly in the primary and secondary syphilis—a disease which has long exercised, and which still exercises, an awful influence over society. From an improper treatment of the primary, the secondary syphilis succeeds; and sometimes the mere local and constitutional irritation of the one or the other induces phthisis, which is, however, far more frequently the effect of the united agencies of mercury and cold. Whenever

the system is not in a high state of arterial excitement, or in an oppressed one of venous congestion, the exhibition of mercury requires the greatest care. Now a certain degree of the inflammatory diathesis does exist both in the primary and secondary syphilis; and it is this which enables us to prescribe mercury so often without prejudice to the general health in lues. But then we should recollect, that it is generally so mild a degree of the inflammatory diathesis as to require a mild administration of the medicine; and in those occasional cases where the inflammatory diathesis runs high, we shall gain no advantage from it, nay the system will usually be impervious to its specific action, until we have premised venesection or purgatives. Both during and after a course of mercury, the nervous sensibility, and the vascular irritability, are often considerably increased; and this more especially happens in strumous temperaments, and is the reason why they bear mercury so much worse than others. Now if patients be exposed to cold in this state, and if they have any tendency to visceral disease, that disease may be at once excited, so susceptible are the nervous and vascular systems to external impressions; and it is on this account that I have frequently seen phthisis take place in young men, while going about their ordinary business, under the influence of mercury. To guard as much as possible against consequences, not only should the syphilitic patient beware of cold both during and after his mercurial course, but he should endeavour to maintain the vigour of the system by a light and nourishing diet, by breathing a pure atmosphere, and by occasionally using the tepid bath. It may finally be remarked on this point, that mercury is peculiarly prejudicial to the true phthisical habit, since it excites the whole capillary system, in part of which the predisposition lies; and therefore whenever the exhibition of this preparation may be necessary in such subjects, it should be given with the utmost caution,

unless they labour under some highly inflammatory or highly congestive disease.(w)

Excess of venery breaks up the general strength more frequently than has perhaps been suspected ; and it is sometimes the latent cause of nervous affections, and occasionally paves the way to consumption in peculiar constitutions. On some occasions I have met with dissipated, or newly married men, whose digestive organs were greatly disordered from this cause and who laboured under an irregular fever, with cough expectoration, stitches in the side, and other threatenings of phthisis. But on strictly enjoining a separate bed, and prescribing a cool simple, and nutrious diet, with medicines which moderately moved the bowels and corrected the viated secretions, all the disagreeable symptoms have in general speedily disappeared. And on a few other occasions, where this injunction, and these regulations of regimen and medicine had been disregarded, the disease has passed on, until the the structure of the lungs was destroyed. In the commencement of cases of this nature, there is generally a peculiar paleness of the face, with great relaxation of the whole skin ; and some degree of nervous tremor with occasional palpitation of the heart, are not uncommon. Where nervous and pectorial symptoms are combined, an opiate now and then will be attained with much advantage ; but the almost daily employment of the tepid shower-bath, the water being strongly impregnated with salt, will be found one of the best remedies, in conjunction with those above mentioned. Many anomalous symptoms proceed from the same source and may be fatal when that source is not timely discovered by the practitioner ; but as their eumeration would be foreign to my present purpose, the hint is merely thrown out to put others on their guard with respect to what has not yet been sufficiently adverted to by medical writers.

(w) Does the syphilitic poison ever produce phthisis, unless an hereditary predisposition to that disease exists ?

Nature has not only supplied the things which are absolutely essential for our support, but has also adapted them to the peculiarities of our constitution. That water was intended as our common drink, we have the most convincing proof in the abundant supplies of it which exists in almost every part of the world. To those whose taste has not been depraved by unnatural stimulants, water is the most pleasant beverage; and no other fluid can be found which quenches thirst, assists digestion, and supplies the waste of the secretions so well. Whatever fluid indeed we take, it is the water in it which performs these offices, and the remainder is superfluous, if not injurious, in a condition of health and of strength. In civilized society, stimulants are accumulated, and tempt us to the temporary pleasure which they communicate; and when satiated by one we too often have recourse to another, until at last health be injured or destroyed. At all times a considerable portion of our happiness consists in the gratification of mere animal feeling, such as hunger or thirst, and the like; but as rational beings we ought to make that gratification subservient to the higher enjoyments of which our nature is susceptible. So intimate is the connexion between morals and medicine, that in his researches the physician must continually take into account the influence of the former on the health. Were the minds of youth early and steadily directed, first to the acquirement of moral and scientific information, and afterwards to the useful avocations, there would be much less dissipation, and of consequence much less disease. Some stimulus seems required to prevent us from sinking into torpor or ennui; and where this stimulus is not supplied by mental recreations and the practice of some business or profession, it will generally be sought in wine and similar excitants. It is easy to perceive how strong drinks, and particularly spirituous ones, may prove the excitants of pulmonary consumptions. Not only do they break up the general strength, by disordering the digestive organs and exhausting the nervous energy, but they propel the blood with preternatural velocity through the lungs, so that

the capillaries take on a diseased action, and tubercles are excited or produced. In cases of this nature, it almost always happens, that the digestive organs give the first indications of disease; and it is curious to remark, how the prominent symptoms will sometimes be apparently in the liver at one time, and at another in the lungs; until at last the latter are decidedly attacked, and the progress of suppuration is then unusually rapid. If consulted at an early period, when phthisis is merely threatened, the medical man may often be of great service to those who have been addicted to the excessive use of wine or spirits, both of which he must positively prohibit; but at the same time it will generally be requisite to substitute small repeated doses of opium for a time, with a moderate allowance of mild ale. This change in the mode of living, aided by a light diet, and such laxative and alterative medicines as correct a vitiated state of the abdominal secretions, will sometimes accomplish more than might have been expected, in a threatened attack of phthisis.

Those who pamper their appetites, or gorge themselves perpetually with rich food, and those who fast long or take their meals irregularly, are apt to suffer from disorder of the digestive organs; and if they should chance to have a tendency to phthisis, it may ensue as an ultimate effect, the precession of the one disorder being in them often closely allied to the supervention of the other. But if any person possessing this tendency suddenly change from a simple to a complicated diet, he will the more readily relapse into consumption, especially if he at the same time change from an active to a sedentary life, or from a quiet and regular, into a noisy and dissipated one, where late hours are kept. Occasionally I have been able to refer distinctly the origin of the pectoral symptoms to some such alteration in the mode of living. Where the patients, did not become decidedly phthisical, they had a copious flow of phlegm apparently from the trachea and the branches of each bronchion, attended with less or more affection of the liver: and where this flow did not take place ear-

ly, but a hard dry cough existed, the lungs were seemingly irritated into suppuration; so that in affections of the liver, I am inclined to think the lungs are sometimes saved from disorganization by an early and copious expectoration. It appears to be the most favourable effort which nature could make for their preservation, and whenever it is wanting the danger will most probably be augmented in the phthisical constitution. If early adopted and steadily pursued, a light simple diet, the compound rhubarb pill at night, and the Harrowgate sulphureous water on the following morning, with an occasional blue pill, very small repeated blisters, and regular habits in going to bed and rising, will most frequently ward off phthisical attacks. When these preventive measures do not seem to operate speedily, a change of climate should be recommended, through a pretty long voyage by sea; and where that cannot be undertaken, a regulated temperature must be substituted in an airy apartment, if the weather should be cold. But whenever the atmosphere is mild and clear, exercise on horseback or in a carriage, or sailing upon the sea or river, may be recommended with probable advantage.

Too spare or too poor a diet often produces consequences not unlike to those of too full or too rich a diet; and the pathologist will find, however seemingly inconsistent, that similar effects are perpetually flowing from opposite causes. In too spare or too poor a diet, there is not sufficient to supply the waste of the various secretions, the wear and tear of the animal machine, and thus the vital principal languishes with the movements to which it is connected;—whilst by too full or too rich a diet, the digestive functions are so much oppressed, that a sufficient quantity of nutriment cannot be prepared from the ingesta for the general support, and hence too emaciation follows. It is notorious that few become consumptive in whom the tone of the constitution is maintained. As a prophylactic measure, therefore, it is of great consequence to avoid too rich or too full a diet on the one hand, and too poor and scanty a diet on the other. If we look among the highest

and lowest ranks, we shall find pulmonary consumption arising from both these causes in peculiar habits; while those are infinitely more secure who persevere in a simple and nourishing diet, day after day, with regularity. Hardly any species of food tends to disorder the digestive organs more than pastry, which is too commonly used in all conditions of life. It has appeared to me a great error to recommend a spare diet to those who are hereditarily predisposed to consumption; and though I know not upon what special pretences it is so commonly done, yet this I know, that it very often occasions what it was designed to prevent; and I can further declare, that I have generally seen such subjects highly benefited by the moderate and daily use of animal food, with a little mild fresh ale. Exceptions to this regimen certainly do exist, but these are not numerous, and occur chiefly in some strumous habits of the first modification, where a brisk circulation and a florid complexion are combined with fulness in the vessels of the lungs. Preserve the general vigour of those who have an hereditary tendency to phthisis, and you place them in security: break up that vigor by a bad diet or any other means, and you hazard their very life.

The state of the population of Great Britain has undergone a great change. The main body of the people formerly existed in the country, it now exists in large towns. It is not my business to investigate the causes of this change; I have only to point out some of its effects as connected with disease. Almost all the inhabitants of large towns may be considered as following sedentary employments: for what are large towns but so many manufactories, where men ply their several trades in a contaminated atmosphere? Among some, it is true, the sphere of action is more extended than among others, but hardly any of them are ever bereft by the exercises and air of the country, which are congenial to our nature, and without which we languish more or less, like vegetables transplanted from their native soil and climate. The old mode of building cities in the East, interspersed with cultivated fields and plantations,

must have been infinitely more conducive to health than the modern plan of huddling houses together as closely as possible ; and though we are not now able to carry it by any means so far, still we might advance our welfare by imitating the ancients in this department of domestic economy. In proportion to the population; the number of deaths is much greater in our large towns than in the country ; and, if my own observation be correct, pulmonary consumption is far more prevalent in the former, the population being supposed equal in both. There is more luxury and dissipation in large towns, more of mental anxiety, and less of bodily exertion without doors ; and much must also be attributed to the impurity of the air, though some chemists persist in telling us, that it is the same in the town as in the country. If we timely observe the breaking up of the general health of an inhabitant of a large town, and send him into the country, we thereby often prevent the developement of some organic disease, such as consumption. Though pale and emaciated when he went away, yet probably he returns ruddy and fat ; and all this change has been produced without the aid of medicine. Now how are we to account for this ?— Doubtless it was partly dependant upon the greater regularity as to rest, diet, and rising, to the refreshing influence of the scenery, and to the intermission of those cares which with an immense weight, press upon the mind of those actively engaged in the world, as the surrounding atmosphere presses on the body. But after all these allowances, we are compelled to ascribe a great deal to the influence of the atmosphere : and accordingly we find, that patients themselves are conscious of its efficacy from what they daily feel. From the mere difference of complexion one may almost know at a glance the inhabitant of the country from that of the town ; and this difference is chiefly attributable to the influence of the atmosphere which they respectively breathe. The good effects of a country air no doubt are connected with its purity, but when electricity is better understood it will perhaps be found that this fluid has some co-operative power ; and though the subject has not yet engaged the

attention of medical philosophers, it can hardly be a question, that the electrical states of the atmosphere in the town and country are widely different. Probably the immediate cause of people in the town being more liable to consumption than those in the country, is simply that the former are not so strong, and of consequence that they are more readily acted on by the exciting causes than the latter.

In speaking of sedentary employments, I cannot refrain from alluding to one circumstance particularly, because it is connected with the medical profession. When young men enter upon the study of medicine, they occasionally break up their general strength by the intensity of their application in the dissecting room, in the tainted air of an hospital, or in their own apartments, and may actually become consumptive from this cause. The impressions upon the general health first becomes evident from an universal paleness of the skin, by some loss of flesh, and by some derangement of the digestive organs ; and it is generally under these circumstances, that a tickling cough steals on day after day, and if it happen to be too long disregarded in the true phthisical habit, it may at last end in suppuration of the lungs. In all cases of this kind, study should be wholly intermittent. A removal into the country, mild laxatives simple diet, an occasional blue pill, and small, blisters will commonly be requisite ; and provided these be early adopted, they will generally prevent the accession of phthisical symptoms.

Few circumstances debilitate the body more than giving suck too long, and therefore we find this a common cause of phthisis in the lower orders of society, where the system is not proportionably supported with nutritious food. It is not unusual among women of this class to suckle their children until they are nearly two years old, with a view of retarding pregnancy again, and saving an immediate expense. While a child is at the breast, the menses are generally suspended, and on this account pregnancy is comparatively rare at that time. Nine months is a sufficient time for any woman to give suck, and

in some who are naturally delicate, that period is much too long. But whenever children are weaned, the bowels of the mother should be kept gently open, and her diet should be light for some time, by way of moderating or preventing the arterial re-action which is apt to succeed such an event. Many causes concur, in giving suck too long, to reduce the strength of the system; but the principal are the excessive drain from lactation, the fatigue of carrying the child, whose weight is constantly and greatly increasing, and the interrupted sleep at nights. The united influence of these is exceedingly powerful where a previous disposition to consumption prevails; but more especially if the nurse should be frequently wet by the child, and neglect to change her clothes, as the operation of cold is then added to that of the other causes. Where there is the least suspicion of any tendency to phthisis, the greatest attention should be paid to those who give suck: the child ought to be weaned much earlier than usual, and the mother should as much as possible avoid fatigue, wet, disturbance at nights, and in short, whatever weakens. It is particularly improper to pamper the appetite at this period, with pastry, wine, cordials, savoury meats, and the like. Both for the sake of the mother and the child, the diet should be simple but nutritious at the same time: since if it be too complicated or too spare, it may equally disorder the digestive organs, destroy the general vigour, and thereby in some prove the occasion of tabes of the lungs. When any peectoral symptoms of a phthisical tendency have arisen during nursing, the child ought to be weaned with all expedition; and it is surprising what a favourable influence this will sometimes exert, in combination with a proper regimen. That diet will be best in such a case, which supports the constitutional tone without exciting the heart and arteries. Flannel or fleecy hosiery should be worn next the surface, the child should not sleep in the same apartment with the mother, lest it break her rest; as for medicines, the mildest laxatives occasionally, and the smallest blisters, will be all that are usually necessary.

It is well known that women subject to large uterine hemorrhages are very apt to become consumptive; and indeed copious losses of blood of all kinds seem capable of inducing phthisis, in patients in whom a latent predisposition to it had before existed. Copious losses of blood not only exhaust the constitutional powers immediately, but they are invariably followed by an agitated sort of re-action throughout the whole arterial system; so that if any part of the body had been previously weaker than the rest, the peculiar re-action here specified excites it into actual disease. In fact, the causes which have just been enumerated operate in a way similar to hemorrhage; for they first break up the strength, and are followed by an arterial re-action connected with much nervous irritation; and in this state the most delicately or defectively constituted organ suffers the main shock of the arterial re-action. It is a remark as old as Celsus,* that debility renders the body highly obnoxious to all diseases; but the remark may be applied with peculiar force to diseases of an excitiv nature, among which consumption must be classed. The stronger the body, the less liable it is to all disorders of the circulation. Debility has a singular power in augmenting the irritability of the whole capillary system of the arteries; and as consumption is a disease imminently seated in these arteries of the lungs, so the causes which produce debility ought to be studiously avoided, by those who have an hereditary tendency to that disease. It requires the most cautious procedure to treat patients properly, who have had copious hemorrhages. If they be excited by strong food or drink, an impetuous re-action supervenes, which may induce an active inflammation of some internal viscus; as we frequently see peritonitis occasioned after delivery by a stimulating regimen, rashly adopted to relieve the temporary feelings of exhaustion. On the contrary, if they be kept too low, the nervous irritation is augmented, and that again re-acts on the vascular system, and irreg-

* Lib. I. cap. iii. p. 23.

ular determinations of blood are the ultimate effects. In short, as before hinted, we must administer a light cool diet to patients thus debilitated, which will support without exciting them, and the present irritation must be allayed, not by wine, but by opiates; and whenever the tide of arterial re-action returns, we must moderate it by a suitably antiphlogistic regimen and evacuants, among the last of which, purgatives are generally the most appropriate.

It is a common opinion of medical writers on this subject, that hæmoptoe is one of the most frequent causes of consumption, but I cannot implicitly subscribe to this opinion. Heberden justly observes, in his Commentaries, that epistaxis is rarely a primary affection; and it may be similarly affirmed of hæmoptoe, which almost always arises out of some other disease. Sometimes it is the effect of a suppression of menstrual or hemorrhoidal discharges, at other times of an obstruction in the liver or spleen, and not unfrequently it is a consequence of an increased action on the tracheal or bronchial lining; and when proceeding from accidental causes of this nature, it does not readily produce phthisis, unless under gross mismanagement, or in those who are known to be hereditary predisposed to that distemper.—Nay, when blood is spit up from the lungs of persons thus predisposed, it is nine times out of ten not the cause, but the consequence of tubercles, which had previously existed in the lungs; and it is not therefore correct to make consumption a common termination of hæmoptoe, as many writers have done. There may be and I believe there are, some solitary cases in which the retention of bloody coagula in the body of the lungs excites them into suppuration; but this suppuration, I suspect, is more frequently of the ordinary than of the true phthisical kind. It is in peculiarly organized lungs, and perhaps in them only, that a rupture of vessels will produce genuine phthisis; and when the loss of blood is large, it may operate unfavourably through the local irritation of the lacerated part, and through the shock which it gives to the constitution. But an alarm is too often indis-

criminatingly sounded, when blood is expectorated, as if the case were utterly hopeless. We should ascertain its source and the habit of the patient, before we give a decided opinion. If it should be found to have proceeded from the suppression of some accustomed discharge, from some disease of the liver or spleen, or from some tracheal or bronchial irritation, it may be most frequently removed by correcting the local derangement, where the phthisical taint is absent; and truly in all of such examples, it is to be regarded as an immediate effort of nature to free the system from some topical surcharge of blood, which threatened to disturb the regularity of its functions. Yet where, on the contrary, there is reason to suspect that the spitting of blood is connected with a phthisical tendency, or with the actual existence of tubercles, the danger is always immediate; and we should then not only give a most guarded prognosis, but deliberately pause before we venture upon the treatment, as the precipitate and free use of the lancet, or any other highly exhausting measure, might entirely defeat the chances of recovery.

In concluding the hints upon the causes which ultimately occasion consumption by breaking up the general strength, it ought not to be omitted, that those causes operate powerfully on the skin from first to last. Debility never occurs without the skin singularly participating in its influence. When the general health of any one is on the decline, we most frequently first remark it by the face becoming of an unnatural paleness; and if we extend our observation, we shall find that this paleness is diffused over all of the surface of the body. A complete change indeed has taken place in the state of the whole capillary system of vessels in the skin; and the very nervous condition of that organ has likewise undergone a correspondent alteration, for powers now act upon it with greater force than before. The bulk of the body has diminished, the skin is withered like an autumn leaf, and the patient shrinks from the impression of a cool atmosphere, which formerly invigorated his whole frame. It is in this very state that the pectoral

symptoms commonly appear, and we may often trace them to an accidental cold ; and where this is not the case, the mere changes in the densities of the atmosphere, by varying the pressure on the surface, may sometimes affect the lungs. Be it constantly recollected, not only that the skin is a fine expansion of nerves and blood-vessels minutely interwoven with the cellular tissue, but that between that sensitive part and the vital organs within, there is a strong reciprocal consent ; and in fact, what is the ultimate structure of these organs, but a seeming modification of the skin itself, a continuity of the same fine and sympathetic fabric of nerves, vessels, and cellular membrane ? Now in all cases of general debility, this sympathy between the surface and the centre is rendered more exquisite. It is on this account in general, that internal inflammations or excitements are then most readily produced by outward impressions ; and it is on this account too in particular, that consumption so frequently arises from the influence of cold at that time. It is not, however, intended by these remarks to insinuate, that general debility cannot lead to consumption but through the medium of the skin ; for it has been already shown, that consumption may directly arise from debility, through a consequent disturbance in the capillary arteries in the lungs, favoured by an inherent predisposition. But it has nevertheless appeared to me from repeated observation, that phthisis does very often follow general debility in the circle above described—the condition and functions of the skin being first changed by the debility, and some external impulse, such as that of cold air, afterwards acting morbidly but indirectly on the lungs through the skin. In the same mode, and to the same agency may occasionally be traced the rise of those abdominal affections with which phthisis is sometimes complicated ; but it is the liver which more frequently suffers in this secondary way from impressions on the surface than the rest of the digestive organs.

The condition of the skin, in conjunction with other symptoms, may enable us to form the diagnosis of the true tubercu-

lar phthisis. In the advanced stage of this complaint, when suppuration has taken place, diagnosis is most obvious, but of little practical utility, for at that time medical aid is almost always unavailable. It is therefore most desirable that we should if possible detect the disease when the tubercles are either forming in the lungs, or when, having previously existed, they are first roused into irritation by an incidental cause. It appears to me, that the first changes which indicate the approach of phthisis are to be found in the skin. The colour of the cheeks always becomes paler and more delicate than before, while that of the lips is often of a brighter red. If the practitioner place himself directly opposite to the patient, and look steadfastly on his face for some time as he converses with him, he may generally observe the colour come and go in a surprising manner. A beautiful bloom will be spread for a moment over some part of the cheeks, and then receding it will leave remarkable pallidity, almost approaching to whiteness. Whenever this symptom is obvious, with a pulse somewhat quicker than natural, and a short tickling cough, phthisis may always be apprehended. It must be distinctly understood that I am now speaking of an incipient or a threatened phthisis, for the above observations will not obtain at all its stages. At this period, too, the whole surface appears paler than in health, and the superficial veins may be observed running in different parts of the skin, somewhat like blue lines through white marble. The hair, from some change in the cutaneous secretion, frequently loses its natural brightness, is laxer or softer, and acquires a dingy or dirty shade ; and whatever pains may be taken, it will hardly ever remain well in the ordinary mode in which it was dressed. The eyes undergo striking alterations, and with them the expression of the countenance. The tunica adnata, which may be almost considered a modification of the skin, mostly becomes of a faint bluish white colour, and the eye has a glassy or glistening appearance ; and an expression of interest, and even of beauty is not unfrequently thrown over the whole countenance, very remarkable in persons whose

face had been previously plain. This change is most manifest in females, on account of the greater delicacy of their skins. The tongue generally participates in these morbid variations of the cuticle, so that its surface for the most part becomes smoother and frequently a little redder than formerly, except in those cases where the digestive organs are disordered at the same time, and then it is often rough and white. The temperature of the skin is never perfectly natural from the first. It is chilly and hot, cool or warm by turns, and some degree of fever may generally be detected after a full meal, though it is most apparent towards night.

In the true tubercular phthisis there is an early tendency to partial perspirations in the night, but at first they are commonly very slight; and when they do not exist, it will usually be found, that the patient passes an abundance of urine, so intimate is the relation between the skin and the kidneys. Indeed there is a circle of nervous and vascular sympathies in the pulmonary, renal, and cutaneous organs, the investigation of which might throw some new light on many diseases. In combination with the above symptoms may be mentioned the confidence of mind which generally attends the approach or invasion of phthisis; for though there be a manifest loss of flesh and strength, an elevation of spirits seem to lift the patient above his bodily sufferings, or at least to make him almost insensible of his weakness. Hence it is that many subjects of incipient phthisis can hardly be convinced of the necessity of any restraint in regard to regimen, and have themselves an assurance in their own health fully proportionate to the fears of those who are interested about them. There are doubtless some exceptions to this state of mind, but they chiefly happen when phthisis is combined with some other disease; and Dr. Philip has therefore, generally speaking, justly made depression of spirits a distinctive mark of that species of consumption which supervenes an affection of the liver. Mental anxiety and corporeal oppression attend most of the common forms of fever, and it is one of the peculiar characteristics of the true

hectic, that they are either wholly absent, or only present in a partial degree; a circumstance which proves that the sensoriām, the chief material medium of mental and of voluntary power, participates less in the phenomena of this, than of ordinary fevers. It is still a common opinion, that hectic arises from the absorption of pus: but facts surely occur every day to overturn this opinion. Large collections of matter are often found under the integuments, and even running sores exist on the skin without the least tendency to hectic; and if the absorption of matter were the cause of that fever, it is difficult to conceive why it should not occur in cases apparently so favourable for absorption. Every body knows, too, that hectic takes place in diabetis when there is no secretion of pus: and practitioners of experience must have met with it in other diseases where much irritation occurred, without any internal or external suppuration; at least I can assuredly assert, that I have known hectic to supervene independently of the presence of pus in any part of the body. Neither can hectic be said to depend simply or solely upon local irritation, since of it a symptomatic fever of the common type is the general result; and yet hectic perhaps never exists without some irritation, which shows that they are related. Some concurrent, accessory state of the constitution seems required to make irritation produce hectic; and, without specifying what that state is, it may be truly affirmed, that hectic never arises but when the system at large is peculiarly affected. In the tubercular phthisis, next to the appearance of pus in the sputa, perspiring during sleep is perhaps the most certain sign of suppuration in the lungs, when taken in connexion with the hectic, and with the cough. To ascertain this point, I have visited patients at all hours of the night, and invariably found some part of the skin moist in sleep, if that sleep had been ever so short; and it may be observed in this place, that the sleep is generally very short, and at unequal intervals, in the genuine hectic of consumption. This disposition to sweat during sleep, often manifests suppuration of the lungs in phthisis, before any

pus can be observed in the expectoration. In the true tubercular consumption, the pus is most frequently expectorated in circumscripted and almost circular pieces, blended with mucus; so that if the patient be ordered to spit into a basin of water, each piece in it appears something like a small cockle which had just been stripped from the shell. This form of the sputa, however, is not uniformly found in phthisis, but it far less seldom occurs in chronic inflammation of the bronchia, in ulcers of the trachea, or in chronic and common suppuration of the lungs themselves, in all of which pus is commonly expectorated in a more diffused, irregular form, and of a more liquid consistence. Having now alluded to some of the most important topics in the pathology of this disease, I shall next proceed to the treatment of the forementioned affections which resemble it, and afterwards offer a few remarks on that of phthisis itself.

For chronic inflammation of the bronchia, change of air ought to be recommended as early as possible, provided the weather will permit it without risk to the patient. In the hooping cough which, when confirmed, may often be practically considered as a species of chronic inflammation of the bronchia extending up the trachea to the glottis, a change of air is highly beneficial; and sometimes it is scarcely less so in the affection here specially discussed, which arises from cold and other accidental causes. So much debility usually results from chronic inflammation of the bronchia, that we can rarely bleed copiously with any advantage; but small, general, or moderate local bleedings are sometimes very useful, when followed up by blisters near the site of the disease. In habits greatly emaciated, we ought commonly to prefer local to general bleeding; for, whatever the latter might promise at first sight, the trial of it will most frequently disappoint our expectations. It were fruitless to attempt at once to change a long established inflammation by powerful impression on the general system. That impression might break through the comparatively weak associations of an incipient, but it will rarely suc-

ceed in a confirmed disease : nay, it would mostly do greater injury to the constitution, than service to the local disorder.—There are certain diseases, in the removal of which the practitioner should resemble the cautious and dexterous angler, who tries various expedients to entangle his prey, and then gradually expends its force before he considers it finally secure.—When however an acute supervenes a chronic inflammation of the bronchia, venesection must be promptly and decidedly used, because in that case, a new disease has taken place, the rapid nature of which requires immediate and powerful measures. But even then we must have a regard to the prior disorder, and not carry our depletion so far as we would in a patient whose health and strength had been previously unbroken. Neither in the strictly chronic inflammatory of the bronchia ought the general bleedings to be often repeated, even when small or moderate at each time; but after the first or second cautious use of the lancet, we should trust to occasional leeching and blistering, when the symptoms seem to demand further applications which have a speedy influence. An antiphlogistic regimen should always be adopted, and where milk agrees it will constitute the best article of diet, as it supports the strength without exciting the heart and arteries; but even where milk alone disagrees, it may frequently be made very digestible by mixing it with equal parts of soda water.

Among the medicines administered internally, the balsam of copaiva deserves to be conspicuously placed, as it is among the best remedies with which I am acquainted, in chronic inflammation of the bronchia and similar affections. It seems in many cases to exert a specific influence over the mucous membrane of the trachea and its branches, it increases the flow of urine, it not frequently keeps the bowels regularly open, and sometimes it acts upon the skin, causing an itching or an eruption. Upon the single or combined influence of one or other of these effects its main efficacy probably depends. At first it should be given, in soft water or in fine mucilage, in doses of about thirty or forty drops three times a day, and gradually

increased afterwards, until sixty, eighty, or more drops be taken at each time; but where it obviously and shortly lessens expectoration, the cough and irritation, it will seldom be requisite to increase it to the last mentioned dose; and where it does not speedily produce such effects, it often will be necessary to increase the dose to more than that amount. In some it occasions sickness, in a few it acts as a strong cathartic. The sickness may often be prevented by combining it with some aromatic water, or a very minute quantity of the spirit of wine; and to restrain its purgative operation, a little camphorated tincture of opium may be added to each dose. But an occasional nausea or even vomiting is most frequently of benefit in chronic inflammation of the bronchia; indeed, whenever there is an oppressive accumulation of phlegm, an emetic ought to be administered. This is a point of great consequence to recollect; for many patients have been suffocated in this disease, for want of the opportune exhibition of an emetic. Yet nausea as well as vomiting, though both are occasionally very useful, should not be too often nor too long excited, especially in a delicate habit, lest they weaken the digestive powers too much, and through them the whole system. It may, therefore, be sometimes necessary to withdraw the copaiva when it operates in either of those ways. In regard to excessive purging, it invariably does harm, and ought to be guarded against with care; but a moderately laxative action must be maintained on the bowels, otherwise the breathing may become oppressed, or the circulation of the cerebrum disordered. Castor oil and the Harrowgate sulphureous water are the two best laxatives in such cases; and, when the bowels do not act moderately under the use of the copaiva, the one or the other should be given early in the morning, that it may operate long before bed-time. It was before noticed, that this balsam sometimes causes an itching or an eruption of the skin, both of which often give great alleviation to the cough; and where either of them does not appear serviceable in that respect, the copaiva ought to be omitted for a time, particularly if any dys-

peptic symptoms be present, which it now and then produces. Copaliva combined with sulphur was the favourite remedy of Morgagni in chronic complaints of the lungs, and I have often exhibited them with manifest advantage. Both these medicines have been too much neglected in coughs by modern physicians, but they were once held in high estimation. The older chemists called sulphur the balsam of the lungs, from the then current opinion of its efficacy ; and when we consider that it has a specific action on the skin, we cannot be surprised if it should be sometimes very useful. But among those measures which chiefly operate through the skin, the warm bath ought not to be forgotten in bronchial inflammation, whether chronic or acute. Its occasional employment not only brings a flow of blood to the surface, which at once relieves the labour of the lungs, but it likewise contributes to allay fever and irritation, and thus has a two-fold influence in affections of this nature. The patient, if possible, should breathe an atmosphere of a moderate and equable temperature, which is sometimes extremely beneficial in alleviating the cough, and acting gently on the skin ; whereas the respiration of a cold or variable medium often aggravates the cough, and repels the blood from the surface.

An intelligent friend prefers the rectified oil of turpentine, in chronic inflammation of the bronchia, to most other means ; and though I have seen it succeed remarkably in some cases, and fail in others, yet my own experience of it has not afforded sufficient data for a fair appreciation of its general powers in this disease. It may be exhibited, mixed in water by mucilage or yolk of egg, in doses of about thirty drops at first, two or three times a day ; where it is found to lessen the cough and expectoration, it may be gradually increased, but where it occasions any thing like general irritation it ought to be speedily withdrawn.

In chronic inflammation of the trachea or its branches, the exhibition of opium alone requires much caution. It has a specific action on the cerebral vessels, by which the lungs

themselves are sometimes secondarily affected, probably from some degree of consequent pressure near the origin of those nerves which communicate with the pulmonic system. In all cases of fullness in the cerebral vessels, the respiration is impeded or oppressed: and when exhibited alone in full doses, opium certainly does tend to check expectoration, perhaps upon the principle just explained. But this specific operation of opium is exceedingly modified by combining it with small doses of calomel, of camphor, and of antimonial powder; and accordingly this combination, the dose of opium being moderate, rarely checks expectoration, for it determines so much to the skin, as rather to relieve than oppress the lungs. Where it seems inadmissible from weakness or some other circumstance, and where an anodyne is still required, a little of the camphorated tincture of opium, or of the compound powder of ipecacuan, will be the best substitute, each of which has a similar though less powerful effect on the surface. Dr. Hamilton, of Lynn Regis, one of the best practical physicians of his time, speaks highly of calomel and opium in chronic affections of the mucous membrane investing the air passages: but it may be regarded as an axiom, that medicine is less efficacious in chronic than in acute diseases. Cordially, therefore, as I join in the general and strong commendation of these two agents, preceded by evacuants, in acute inflammations, it is only justice to confess, that they have not unfrequently disappointed my expectations in chronic ones. When, however, an hepatic affection is co-existent with a chronic inflammation of the bronchia, small doses of calomel at night, with as much of the sulphureous Harrowgate water on the following morning as will purge effectually, are often extremely beneficial. But in delicate constitutions it will be better to substitute the blue pill, or mercurial frictions over the region of the liver, as these affect the general system less than calomel; and where there is an obvious tendency to the tubercular phthisis, even the blue pill and the blue ointment must neither be long nor largely administered, lest the general strength be

therby shaken, and the capillaries of the lungs excited into disease under that condition.

In the first volume of the Medical communications of 1784, Dr. Samuel Chapman published a practical paper on pulmonary and other complaints, apparently supported by fever of the intermittent and remittent kind, and cured by the bark. He was led to the use of this remedy from having observed, during his attendance upon a case, that the patient was, in a manner, free from fever in the day-time: that the paroxysms had regularly returned at nearly the same hour every evening; and that the urine, on the subsidence of the sweat, deposited a laeterious sediment, whilst it was clear at the top. In short, the febrile exacerbation about the beginning of the afternoon, the branny sediment at the bottom, and the greasy appearance on the surface of the urine, were all wanting in this case; and as these are the general attendants of the true pulmonary hectic, he concluded that the case was not genuine phthisis, though the expectoration was purulent. He reports other cases of a similar character, all of which readily yielded to the exhibition of cinchona; and though he does not attempt any explanation of their seat and pathology, yet they were obviously instances of chronic inflammation of the bronchia, attended with an intermittent or remittent form of fever. This paper is highly important in a practical view; and as the history, diagnosis, and treatment of chronic inflammation of the bronchia are still very imperfect, it is well calculated to stimulate inquiry, as well as immediately to convey useful information.

It will be perceived, that I have mentioned many remedies for chronic inflammation of the bronchia, and, in citing the paper of Dr. Samuel Chapman, have added bark to the number. The same disease, it is notorious, may be cured by different measures; and the same disease, too, may actually require different measures, from the term of its duration, from the habit of its subject, and from other peculiarities. But still this complexity of prescription argues a defective state of information on the subject. It shows, indeed, that we are not

yet, from the cautious observation of particulars, arrived at sound general principles in the therapeutics of this disease, to say nothing of the pathology. The measures, in truth, which are above recommended, have been so far from generally successful, that I have sometimes felt it my duty to prescribe others; and among these have been ipecacuan and digitalis, the last of which has occasionally succeeded, where every thing else had previously failed, and its success seemed to depend upon its reducing the action of the heart.

Before, however, concluding the treatment of chronic inflammation of the bronchia, I must caution the practitioner not to exhaust the powers of his patient by too rapid or too long succession of expedients; and this is an error into which we are very apt to fall in the treatment of many chronic diseases, from an anxiety to alleviate or remove some prominent system: so that when one measure fails, we recur to another, until at last the accumulated irritation of unsuccessful applications is added to that of the disease, which of course is finally aggravated. Where none of the most promising medicines act beneficially in chronic inflammation of the bronchia, a long voyage to a warm climate should be immediately recommended. This simple change sometimes succeeds, better than any other means, and indeed it will seldom fail when early adopted. But where the season of the year or some other cause prevents us from carrying this measure into effect, a regulated temperature must be adopted in its stead; care being taken at the same time to have the same apartments properly ventilated, by removing the patient from one to another at convenient periods. The inhalation of the vapour of heated pitch or tar is a favourite remedy among some of the lower orders of society in bronchial fluxions; and this affords a strong presumption that it must have formerly been used by physicians, as most popular remedies have descended to the public through the faculty. I have not yet seen sufficient of the effects of this remedy, to enable me to estimate its general powers with any thing like precision: but an instance occur-

red to me where it occasioned an acute attack of inflammation of the windpipe, and I have met with a few others in which it produced an insupportable irritation of that part. The vapour of burning pitch has recently been recommended by a most respectable authority as a remedy for the tubercular phthisis itself, in the advanced or suppurative stage; and though one might be inclined to suspect, that the cases apparently cured by it had simply been instances of chronic inflammation of the bronchia, yet any measure which holds out the most distant hope of success, merits a fair and full trial.

Hippocrates was acquainted with ulceration of the trachea, for he expressly recommends those affected with a hot ulcer, called aphtha, in the aspera arteria, to avoid the wind and the sun; and *Ætius* taught that ulcers near the extremity of the aspera arteria, or in the extremity itself, were curable by keeping the patient in a supine posture, and by raising the head with pillows to a considerable height. In the 22d letter and the 2d book of his work on morbid anatomy, where the above two references will be found, Morgagni minutely details the cure of one Stephen Cheli, a man of rank, who had long been troubled by a cough, purulent and bloody expectoration, with a sense of pain a little below the larynx, and in no other part. From this combination of symptoms, and the absence of a continual fever, he detected the disease to be an ulcer in the trachea, which had been mistaken for consumption by other physicians, to whom he alludes in a style of singular modesty, in every way worthy of his mind. First of all, he ordered the patient to shut himself up in a warm chamber neither low nor close; and there giving up all business, rather to hear his acquaintance, than to talk much himself, and when he did, to speak in a low and slow tone. Having found that woman's milk agreed very well with him, he made his patient suck about half a pint from the breast of a healthy nurse, morning and evening. He likewise informs us, that he took particular care in directing her to use proper aliment, and to avoid variety of them as much as possible. The

neglect of this circumstance he considers is the only reason why the milk of women is not better than the milk of animals for medical purposes, and adds that Euryphon and Herodotus preferred it to others in consumptive disorders, as it was familiar to us, and of the same nature with ourselves. In this remarkable case, wine, and every thing else that might be injurious, was carefully avoided: the dinner and supper of the patient consisted of a pudding made of barley flour with a little china-root, but without sugar; and these ingredients being mixed up with milk, drawn fresh from a cow which had been fed upon barley and chaff, were reduced into a kind of calx over a slow fire. This regimen was strictly observed from the end of November to the middle of May, and the result was, that the patient recovered, and remained well for sixteen years afterwards. As this was generally esteemed to have been a case of consumption, Morgagni observes, that there were no consumptive persons in the city who did not prescribe the same method to themselves, but not one of them escaped. This case may show us how much may be done by those minute regulations of diet and the like, which we are perhaps too liable to neglect as things of minor importance; but in conducting the treatment of chronic diseases, attentive observation will convince us, that without the conjoined efficacy of a proper regimen, medicine can generally do little or nothing.

It was formerly observed, that the most distinguishing mark of ulceration of the trachea, is pain, soreness, or some species of uncasiness referred to a particular part of the windpipe, in combination with purulent sputa; and if to this diagnostic sign a peculiar difficulty of breathing, with oppression of the *præcordia*, and a loss or hoarseness of the voice, be superadded in any case, we may be fully assured of its nature. Mr. Bedingfield remarks, in his valuable compendium of medical practice, that every case of ulcerated larynx and trachea which had fallen under his observation, terminated fatally; and, with the exception of two instances which manifestly arose from syphilis, and which were early detected, my experience

has been equally unsuecessful in this disease. Both these cases were cured by saturating the system rapidly with mercury, and by maintaining its specific action for some time. That part of the traehea, which anatomists distinguish by the name of larynx, is perhaps most liable to ulceration ; and when the ulceration is seated there it is more rapiō in its progress and more violent in its charaeter, than when seated in any other part of the windpipe. From the generally fatal tendency of ulcers of the traehea, the ingenious author above mentioned asks, whether it would be adviseable to make an opening into the traehea or larynx, and apply such substanees to the sore as might excite a healthy aetion on its surfaee ; and, apparently by way of giving force to this query, he mentions having seen several ulcers on the skin, which bore a strong resemblance to those of the larynx, cured by the application of nitrate of silver. The operation here suggested, however hazardous it may appear, deserves an additional claim to our notice from two circumstances, which Mr Charles Bell has communieated in the first part of his *Surgical Observations*. This scientific surgeon performed the operation of laryngotomy on a woman for a disease of the larynx, which threatened instant suffocation ; and it was observed, that the air drawn into the artifcial opening oppressed the respiration, probably from inspissating the mucus, or drying the lining of the pulmonary pas- sages. To remedy this defect, the patient instinctively wrapped a little lint about a probe, dipped it in water, and then put it into the wound, allowing the water to drop down the windpipe, as it appeared to facilitate the respiration, and the dis- lodgement of mucus.* If one substanee can be thus put into the windpipe, why may not another ? But this is not a mere question for consideration, the thing has aetually been per- formed. In a female patient, whose epiglottis appears to have been destroyed by ulceration, Mr. Charles Bell aseertained, by

*See Part I. p 29,30, of *Surgical Observations*, being a Quarterly Report of Cases in Surgery. By Charles Bell. London : printed for Long- man and Co. 1816.

passing his finger over the root of the tongue downwards that the glottis was rough and irregular with ulceration ; and as the case seemed all but desperate, he repeatedly touched the glottis with a pad of lint fastened to a wire and dipped in a strong solution of nitrated silver.* So far from this bold treatment exciting irritation, it was attended with the most soothing and beneficial effects. Mr. Charles Bell was led to it from considering the relief which this caustic solution gives in common sores, in ulcers of the cornea, and in irritable spots of the urethra. The above circumstances afford a strong presumption, that the operation which Mr. Bedingfield has suggested, might be undertaken with a chance of success in some cases ; and where, humanly speaking, no other mean is left to assist, the patient, why should not this be tried as the last resource of our art ?

The foregoing facts not only suggest the occasional propriety of a local application, through an external opening, to an ulcer in the windpipe, but they seem to indicate the probability of benefit from the use of certain vapours or fumigations ; indeed where the difficulty of breathing is not so great as immediately to threaten life, perhaps some vapour or fumigation may hereafter be discovered to answer all the purposes of a solution of lunar caustic applied directly to an ulcer of the windpipe. At the same time it is certain, that ulcers of the trachea are often but the last effects of insidious inflammations, the early symptoms of which have not yet been accurately detailed ; but it is to be hoped, that practitioners will hereafter mark and illustrate those symptoms, and thus enable us frequently to prevent what we now find so difficult to cure. In the secondary syphilis, however, ulceration of the windpipe sometimes apparently arises without any intermediate stage of inflammation, or the ulceration is at least almost simultaneous with the inflammation : yet this does not invariably obtain, for at other times the ulceration in the trachea

* See part 1. pp. 35, 36, 37. of *Surgical Observations, &c.*

appears to follow as an extension of that which had primarily existed in the fauces. It is well known, that those who are subject to lose their voices from cold or similar causes not unfrequently have purulent expectoration at last, and they are usually supposed to die of genuine consumption. But though such persons are unquestionably liable to lapse into phthisis, yet they are sometimes affected with ulceration of the trachea, a disease which has often been mistaken for the former. Whenever we are called to any patient with a hoarseness, attended with some disturbance of the respiration, we should be most minute in our inquiries, and cautious in our treatment; since these two symptoms may be the concomitants of that obscure species of inflammation which produces an ulcer in some part of the windpipe. In venereal ulcers of the throat, we should be especially attentive to the state of the voice and respiration, that we may not allow an ulcer to invade the larynx unawares. The voice is always changed in a general sore-throat, the patient speaking through the nostrils with a sort of sharp metallic sound; but when the windpipe becomes ulcerated, he generally speaks as in a thick hoarse whisper, and has an irritating cough, while his respiration is more or less uneasy, and even spasmodically affected at times. In the chronic hoarseness which arises from cold or other irritants of the windpipe, no remedies are so useful as emetics, copaiva, a regulated temperature, and occasional blisters and laxatives; but the hoarseness which owes its origin to syphilis requires, like every other symptom of that disease, its specific remedy. Many cases of secondary syphilis are accompanied by loss of flesh, general debility, paleness of the skin, and some degree of fever at nights; and, especially if there be an ulcer in the throat, a tickling cough is apt to be present, so that the character of the case might appear truly consumptive, but for the peculiar concomitants of lues. The practitioner should therefore be constantly on his guard, lest from a first impression of the constitutional and pectoral symptoms, he might overlook the real nature of the disease and omit mercury: on the other hand, he

ought to be equally attentive not to mistake a simple and genuine phthisis for any modification of syphilis; since, however excellent mercury may be in the latter, it is by no means appropriate to the former. In common ulcers of the trachea, copaiva appears to be worthy of a trial, as it often acts favorably in inflammations of that part.

Chronic inflammation of the pleura is very often remediable if it be early and properly attended to, but when it has existed for some time the best measures will generally fail. In its first stage, before effusion has taken place in the thorax, one or two small or moderate bleedings from the arm ought mos'ly to be premissed. Afterwards leeches and blisters should be applied repeatedly and reciprocally to the chest, in conjunction with daily diuretics, occasional laxatives, and an antiphlogistic regimen. If these measures prove unavailable, the mouth must be slightly affected by calomel, and the recently dried and powdered squill administered, as soon as the ptyalism occurs, and gradually increased in quantity until it acts powerfully on the kidneys. The operation of calomel as an alterative in such instances is highly useful, but it ought generally to be given with small doses of opium, which allay irritation and promote a determination of blood to the surface. Exhibited while the system is under the influence of mercury, squill is often an excellent diuretic, and from this property it tends to alleviate affections of the pleura and to ward off serous effusions within the bag of that membrane. But for squill to be efficient as a diuretic it should be given whilst it is fresh; and the principal cause of its frequent failure is, that the preparations of it, which we commonly prescribe, have been too long kept in the shops. The upper poles of the bed should be raised eight, ten, or twelve inches, by placing blocks of wood under them, as before mentioned; or a frame, with an equal elevation, should be made of the size of the bedstead, and fastened to it by screws, and upon this frame the bed or mattress must be laid. An inclined plane, such as is here described, frequently enables patients to sleep with some degree of com-

fort, who would have otherwise passed most uneasy nights. Of course a foot board is requisite whenever the bed is thus raised at the top, to prevent the body from sliding down. The temperature of the sitting and bed rooms should be regulated according to the feelings of the patient, and to the state of the skin: but it should seldom be below 60°, else there will be a danger of inducing chillness of the surface, a circumstance which is apt to aggravate the pectoral symptoms. In the last stage of chronic inflammation of the pleura, when serous effusion in the cavity of the chest, or suppuration in the lungs has supervened, the efficacy of medical agents generally amounts to but little. For the removal of effused serum, a cautious and continued trial may be made of digitalis and squill, with a light infusion of columbo and the carbonate of potass: and where these do not answer by themselves, the system should be put gently under the influence of mercury; and the digitalis and squill being then again administered, they will sometimes act as powerful diuretics. The whole class of diuretics often fails before the administration of mercury, and sometimes succeeds after it, a fact which must have been long familiar to many experienced practitioners. When an abscess exists in the body of the lungs, we do not know with certainty, of any remedy which operates as a vulnerary to the part. But by placing the patient in a mild fresh atmosphere, by administering an emetic occasionally to relieve laborious respiration, and by supporting his strength with nourishing food, nature will now and then be enabled to effect the recovery. The common swing will often be useful as a palliative for the extreme dyspnoea which so frequently attends hydrothorax or an imposthume in the lungs; and I have been sometimes struck to see in confirmed consumptions how easily patients seemed to breathe under this motion, while every other greatly disturbed the respiration.

When chronic and simple inflammation attacks the parenchyma of the lungs in the first instance, the treatment must be pursued upon the same principles as in the chronic inflamma-

tion of the pleura ; but in the former it is probable, that considerable advantage might be derived from digitalis, which is frequently serviceable in the incipient stage of the latter, when sufficient depletion has been premised. In all inflammatory affections of the pulmonary organs, the lungs ought to be exercised as little as possible ; and therefore, both motion of the body, loud or long conversation, and the like, should be prohibited.

When any of the foregoing affections exists in phthisical habits, it requires the more care not only on account of its immediate disturbance, but also on account of what it might ultimately occasion ; yet whenever we are compelled to bleed such habits, we must make the depletion as in moderate as the existing circumstances will permit ; for we must never fail to recollect that very copious losses of blood may be an indirect cause of consumption, and that in persons hereditarily predisposed to it, moderation is the golden rule as to venesection. This remark even obtains in such persons when they are attacked by an acute or sub-acute inflammation of the pulmonic system, or indeed of any other part. We must certainly attempt at once to remove the inflammation by decisive means, otherwise we place the life of the patient in immediate jeopardy, and it would be gross imbecility to stand deliberating about a distant and contingent danger, and to allow a present and perilous disease to advance without interruption. Nevertheless, a judicious physician would not only promptly encounter the present disease in persons of this description, but he would also if possible, take care, that while his measures were directly efficacious, they should not be so powerful as eventually to lead to another disorder. In all highly acute diseases, the lancet is the right arm of medicine, perhaps calomel the left. But at the same time the mode of application of each of these powers requires to be varied according to the age, constitution, and other circumstances, even in ardent fevers : and where we have grounds for suspecting a consumptive tendency, we ought generally to procure the purgative without the

alterative operation of calomel, after the discreet employment of the lancet. The modifications of the strumous temperament were before pointed out: one, in which, with the other known indications, the skin is naturally pale, and the circulation sluggish; the other, in which the circulation is naturally brisk, and the complexion sanguine. The last bears depletion much better than the first, but in both, excessive evacuations of blood are liable to break up the general strength; and as I consider, in common with many writers, that phthisis is nothing more than scrofula of the lungs, it may easily be called into existence by too much depletion, like every other modification of scrofula. Neither must our attention be solely confined to the removal of an acute, or of a sub acute or chronic inflammation in phthisical habits; but we must extend our solicitude throughout the whole of the convalescence, lest insidious disturbances of action should afterwards arise and proceed in some of the viscera, especially in the lungs.

It was before noticed, that two circumstances are necessary for the production of the true phthisis: first, a predisposition in the lungs to the tubercular action, and secondly, the concurrence of an occasional cause to excite that action. The mere removal of the occasional or exciting causes of pulmonary consumption, has often been mistaken for the cure of that disease. Were I to enumerate, as direct recoveries from consumption, the instances in which it has been averted by removing the exciting causes, my success would seem great; and yet, even in the incipient phthisis, I have not often succeeded in arresting its progress when the true tubercular action has been developed. If this statement shows how difficult it is to cure phthisis, when once it has taken root and begun to spread in the lungs, yet it also proves that threatened attacks of this formidable malady may frequently be warded off by opportune care and proper measures. If we examine into the history of those causes which come before us, we shall often find that the symptoms of phthisis had been preceded by those of some local irritation, or by indications of a breaking

up in the general health from the causes already specified. Now when phthisis is preceded by either of these states, its prevention is generally within the power of physic, provided advice be early obtained ; but it too frequently happens, from delay on the part of the patients, that the structure of the lungs is disorganized when the practitioner is first consulted, and unfortunately all that is left for him to perform, is to palliate the prominent symptomis. It is surprising how careless patients are about themselves in the commencement of those chronic diseases, under which they are enabled to perform their ordinary offices ; and so long as they can walk about with tolerable ease, they flatter themselves that all is safe, when the complaint is day after day undermining their very vitals.

When called to any case which has the character of a threatened or of an incipient phthisis, the practitioner must minutely inquire into its real nature, that he may ascertain whether or not it be connected with any local irritation inside or outside of the chest, or with any depraved state of the general system. If such a local irritation, or such a depraved state of the general system actually exist, the chance of recovery is the greater ; for if either can be removed, by the means intimated, the pectoral symptoms may disappear, provided they depend upon a sympathetic disorder of action, and not upon derangement of structure. On the contrary, should the phthisical signs be unconnected with morbid conditions of this nature, perhaps the measures upon which most confidence is to be placed, in the present state of our knowledge, are those which act directly or indirectly on the skin, at least this is the result of my own observation. But it may first be naturally inquired, what is the power of blood-letting in the primary stages, as it is now becoming so favourite a remedy ? Celsus advises venesection, Pringle does the same, and other anhors of note as well among the ancient as the modern : but I nevertheless suspect, that it will rarely of itself stop the approach or advancement of phthisis except when chronic inflammation of the pleura, of the trachea, or of other parts is operating as

an excitant of the latter in habits hereditarily predisposed. In some cases of apparent genuine phthisis I have ordered repeated full bleedings from the beginning, until it would have been temerity to proceed further: yet the disease passed on, and the blood drawn generally exhibited the buffy coat to the final operation. From this last mentioned circumstance some might contend, that the venesection should still have been boldly ventured on, as the blood so evidently showed inflammation. But in reply to this remark it may be urged, and justly too, that the buffy coat may be both occasioned and maintained by repeated abstractions of blood; for more or less re-action of the heart and arteries, by which the buffy coat is produced, always follows blood-letting when carried beyond a certain point, and this is particularly the case in the irritable subjects of a phthisical tendency. Upon this principle, therefore, the very measure with which we so often subdue inflammation, may be made the cause of producing it in certain diseases: and however boldly and laudably we use it in intense inflammations or congestions, it requires a more deliberate and wary employment in complaints of a chronic character. Most certainly I have seen small or moderate bleedings of benefit in incipient phthisis, when followed by blistering, but wherever there is a great constitutional delicacy, we must be cautious even in having recourse to them; and at all times when we determine on venesection in phthisis, we must endeavor so to regulate it as not to make it the occasion of an increase of that re-action which it is designed to moderate.

As I conceive, in a pure and incipient phthisis, that the most beneficial measures operate through the medium of the skin, it may not now be amiss to say a few words respecting those measures. The best things that can be done for one in whom pulmonary consumption is suspected, or actually existent in an incipient state, is to send him immediately to a warm climate; and the voyage to the place of his destination should be made rather long than short, as sailing upon the sea is very useful on many occasions. When physicians are called to a

threatened or an incipient case of genuine phthisis, they are often anxious to keep the patient under their own eye, with the hope that they may be able to prevent or to stay the disease; and thus from the best motives, day is allowed to steal over day, week over week, and month over month, until at length suppuration makes its fatal approaches, and until almost every chance of recovery is at an end. A change of climate or a sea voyage at such a time can effect nothing; and removing patients from home then, is only to deprive them of those comforts which tend to mitigate their last sufferings. It is always a great and often a mortal error to protract a sea voyage, and a change to a warm climate, in an approaching, or incipient consumption. When the voyage is determined on, and even when it is undertaken early, the patient must cover the surface with flannel or fleecy hosiery, so long as he shall remain in a cold or changeful atmosphere; and even when in a warm climate, he must still be attentive to the state of the skin, and be mindful to avoid being chilled by night air or by damp linen next the surface.

But as this measure is only fitted for persons of a certain rank, it may be demanded, what is to be done for those who cannot go abroad? In several instances I have advised such patients, threatened with consumption, to take a few voyages in vessels that traded from one part of England to another; and in the spring, summer, or autumn, they often answered an excellent purpose, especially when the weather was fine. But I have always strongly enforced the necessity of very warm clothing while they were sailing from place to place; and pointed out to them the example of the sailors of some of the northern ports, who mostly wear flannel next the skin when at sea, and besides this, protect themselves still more by woollen jackets, trowsers, and coats. If patients be regardless of their clothing when at sea, they are very apt to catch cold, and may thereby counteract the good of the voyage; whereas if the whole surface be defended properly with flannel or fleecy hosiery, they place themselves under the most favourable circumstances.

The beneficial effect of a sea-voyage and of a warm climate, in the threatening or first invasion of phthisis is chiefly referrible to the influence which they have upon the surface; the nausea or sickness commonly attendant on the first, and the high and genial temperature of the last, alike determining the blood to the skin. A new impression is therefore at once instituted and maintained, and that on so large an extent, and on so sympathetic part of the body, as sometimes partly or wholly to arrest the disorder in the capillaries of the lungs. And when we are not able to command either of these powerful auxiliaries for the subjects of an incipient phthisis, we can find substitutes, the operation of which is somewhat analogous to theirs, though far less efficacious. Accordingly a regulated temperature, and the exhibition of tartarized antimony to excite nausea or vomiting, are sometimes combinedly advantages in impeding or alleviating phthisical attacks; and I suspect, that if they were more early and perseveringly employed together, our success might be greater, where patients cannot be sent abroad.

In speaking of phthisis pulmonum, Heberden acknowledges, that patients bore sailing upon the sea well, even when they spit up great quantities of blood; and he moreover adds, that the hæmoptoe has not been in the least aggravated by a voyage of six weeks, though excessive vomiting occurred during the whole of that period. If we permitted ourselves to reason, *a priori*, on matters which involve health and life, we might probably conclude, that emetics must necessarily be prejudicial in spitting of blood: yet I have found them extremely serviceable in that species of hæmoptoe which takes place in habits apparently phthisical; and agree with Dr. Bryan Robinson, and with Dr. George Rees, that they are generally, preferable to the use of the lancet in such cases. Not that I mean to imply by insinuation, that blood letting is never needed in the hæmoptoe of these habits, but some remarkably impressive facts have inclined me to believe, that profuse bleedings are always hazardous: and even moderate ones are per-

hops in general better omitted, unless there be the most distinct evidence of topical fulness with general excitement, and then cautious venesection is necessary. It is an excellent remark of Heberden, particularly when applied to phthisical constitutions, that where an hemorrhage proceeds from the rupture of some very large vein or artery, venesection will not restrain it, and that when it proceeds from some small one it will stop without the help of the lancet. When spitting of blood is the result of an affection of the trachea or bronchia, emetics are not inadmissible; but when hæmoptoe is connected with obstruction in the liver, purgatives are then decidedly indicated, and, so far as I have remarked, emetics ought not to be exhibited. Neither can emetics be given to pregnant women attacked with hæmoptoe, without the hazard of causing an abortion, and on this account it is most prudent to avoid their administration. When spitting of blood does take place in pregnant women, it is mostly connected with hepatic disease, and with a general excitement of the arterial system. In such examples, therefore, moderate venesection is generally requisite and useful, particularly when followed by purgatives; and where the liver is manifestly affected, after a few doses of calomel, the almost daily exhibition of the Harrogate sulphureous water, with some aperient pill, will frequently be very advantageous. But as scyphala are apt to be retained in the colon, castor oil ought occasionally to be administered, as it will more effectually and mildly dislodge them than any other medicine. When the skin is hot and dry in a hæmoptoe, cool air may be liberally admitted, and cool drinks given; but when the skin is cold, this practice requires caution, as it may tend to excite phthisis in the peculiar habit. In three or four cases of uterine hemorrhage, I have seen phthisical symptoms apparently called into action by the too free and long continued use of cold applications. Whenever the practitioner is compelled to recur to these applications, he should afterwards pay the strictest attention to his patient; for from the combined influence of the cold, and the shock

which the system sustains by large losses of blood, acute or chronic diseases often supervene, when nature attempts to rally by means of an arterial re-action. If there is much nervous irritation in any case of hæmoptoe, opium is frequently of great use, but especially when the loss of blood has been large ; and my general experience of the efficacy of this medicine in copious eruptions of blood fully confirms the commendations which Dr. Stewart has bestowed upon it in uterine hemorrhages. When the system has been excessively exhausted by loss of blood, an extreme nervous agitation arises, which not only re-acts upon the heart and arteries, but which may destroy life from its mere continuance. This agitation is often so surprisingly calmed by opium, that I have seen patients, seemingly in the jaws of death, saved by its administration.

But in regard to the skin, my attention was first drawn to its consideration from observing the great changes which it underwent in its colour and functions on the approach or invasion of pulmonary consumption ; and its pathological influence became still more interestingly set before me, when I saw some patients fall into that disease shortly after the disappearance of cutaneous eruptions, and others greatly relieved by the accidental or spontaneous occurrence of such affections at an early stage.(s) It naturally, therefore, became a question with me, whether any thing could be done for the prevention or cure of phthisis, by attending more closely to the state of the skin than had hitherto been done.

If medical men were asked, what expedients, upon the whole, are really useful in checking or relieving the symptoms of an incipient phthisis, a large majority would probably be in favor of blisters : for concerning their agency less discrepancy of opinion perhaps exists, than upon that of most other means

(s) The whole of our author's remarks upon the skin, deserve to be attentively considered. We fear that medical men generally regard too little the condition of the surface and are too sparing of the means appropriate thereto.

daily prescribed. In modern times the use of blisters has almost superseded that of issues, which were so famous in the ancient world, and which maintained a character for centuries; and though the former are decidedly preferable to the latter in many diseases, yet perhaps their application in chronic ones is too much limited to a particular spot. The ancients applied their issues to various parts of the skin, the moderns generally apply their blisters to one part. But, if my experience be allowed of any weight, we should resume the method of the ancients in many chronic diseases of the internal organs. When we apply leeches to the external vicinity of an inflamed viscus, we suppose that their whole efficacy depends upon their relieving the fulness of the internal vessels, from their inosculation with those on the surface: yet only a part of their efficacy is really attributable to this effect, for I have found from experiments, the results of which shall afterwards be reported, that their influence on the general circulation is infinitely greater than has usually been imagined. Besides this, attentive observation will soon convince any one, that between the whole capillary system of vessels there is a sort of specific sympathy: so that influencing their action in one part of the body, frequently produces striking effects in that of other parts; and the more this circle of sympathies in the capillary vessels is investigated, the more important it will be found in pathology and practice. Now the efficacy of blisters is not altogether local, as has generally been imagined. No doubt they often operate a change of condition in the part beneath the place of their application, but independent of this and also of the local inflammation which they produce, they affect the constitution at large; and it is partly by this their general influence, that they powerfully contribute to destroy the mixed associations of many maladies. No local affection of consequence can exist without implicating the whole system in disorder; and, on the contrary, no general shock can be long sustained without implicating particular parts. Most of the measures which we employ act generally as well as locally; for there is an indivisibility of the vital as well as of the mental

principle. We do not so much cure diseases by directly removing them, as by instituting states incompatible with the existence of those diseases; and in considering the treatment of almost every complaint, it should be our object to discover, what are those remedies which create a local and general change inconsistent with that of the existing disease. It has long since struck me, forcibly struck me, that a most important improvement might be effected in the treatment of consumption by ascertaining the powers of those agents which act on the skin. In some cases of threatened phthisis, I have seen very great benefit from almost daily sponging the skin with water and vinegar, and have sometimes added a little salt with apparent advantage. The spongings not only lessened the disposition to fever, but also greatly refreshed the patient, increased the appetite, and lessened the cough; while they also seemed to communicate a tone to the surface, which enabled it to bear the influence of the atmosphere better than before.

Consumption has most frequently been presented to me in a confirmed state, when little was to be expected from any measures; but even then I have seen much temporary relief of symptoms from very small blisters to the chest and other parts of the body, either applied at the same time, or in quick succession. In other instances of this kind, crops of pimples in different parts of the skin have appeared to be beneficial; and the best mode of inducing them is by an ungent, made of the tartar emetic, camphor, and common white ointment, in the proportion of one drachm of the first and of the second ingredient, to an ounce of the third. A little of this compound well rubbed upon any part of the skin will soon bring out a crop of pimples; and where it is found to fail, the proportion of tartar emetic must be increased until it answers the purpose intended. Yet in the last stage of consumption, there are some cases where these and similar irritants procure no alleviation, nay, where they seem to do harm by increasing the fever; and in examples of this nature, the only measures in common use,

which can be of much service through the medium of the skin, are a regulated temperature, and the occasional employment of the tepid bath, or of the tepid affusions. But as the last stage of consumption, with all its appalling concomitants, is merely the product of preceding disorder, we must rather endeavour to look to this disorder, and to inquire how far it can be affected by powers which operate upon or through the skin. Very small blisters applied to different parts of the integuments of the chest, aided by issues or pimples in the upper and lower extremities, have seemed to arrest the progress of some incipient cases of consumption; but then their operation was assisted by one or two small bleedings, by occasional antimonials, by a regulated temperature, by a light diet, and by the warm bath. In other instances, however, these very measures failed, even when applied under circumstances apparently as favourable as in those where they had succeeded. These facts would perhaps authorize the conclusion, that what is called the tubercular consumption is a specific affection, under which some varieties occur; for if this were not the case, why should the same measures succeed in some, and utterly fail in others? The truth is, that the true tubercular phthisis does comprehend varieties, which have not yet been discriminated: and of this I have been convinced, from the various appearances of the pns, and from the different characters of the tubercles found in the lungs, as well as from the circumstances above noticed. If the nature and pathognomonic signs of these varieties could be ascertained, it would be an important step in the pathology of phthisis, and might perhaps finally enable us to improve the treatment.

Some time ago a poor woman applied to me for advice, who seemed to be hurrying towards the grave, from the force of a recent but rapid consumption. She happened to be attacked by an eruption resembling the common itch, and the alleviation which it gave to the chest was so striking, that I resolved to let it spread on the skin. The phthisical symptoms wholly disappeared under its progress, and it was, after some weeks

duration, cured by the sulphur ointment; but by way of guarding against consequences, I ordered a seton to be made in one of the sides, and an issue in one of the arms. In the case of another female, who was nearly in the same state, the cough and fever gradually abated on the coming out and continuance of a spontaneous rash, and she recovered apparently from its influence alone. One patient was always relieved of a constitutional sort of cough, when pimpls came freely out upon her face; but they disappeared entirely under the use of a lotion, and she shortly afterwards fell a victim to true consumption of the lungs. These and similar facts which I could mention have made a deep, an indelible impression on my mind; and if my desire be great to make their results recollectcd by others, the vital importance of the subject must plead my excuse.

On a first view it might be supposed that such extreme counter-irritation as *Aëtius* has advised must necessarily be injurious. It might and probably would be so in a condition of health. The case, however, is widely different when the body decidedly labours under disease; for counter-irritations are then often well borne, which would have been intolerable and injurious in a sound state. Apply a rapid succession of blisters to a strumous habit in whom no disease apparently exists, and you will excite the system into great disorder; but let another and similar habit actually labour under disease, say of some of the joints, and you may apply blister after blister not only without injury, but with positive advantage. We are far too apt to reason about the operation of remedies in disease from what we have observed of their effect in health; yet we must always take into account the condition of the body at the time of administering our measures, otherwise we shall be liable to the most serious mistakes. The common mode of making issues has appeared to me extremely defective; for after the first irritation subsides they are generally allowed to exist a long time simply as drains, which are of little or no use. To be really efficacious, issues should be often renewed,

that there may be a sort of perpetuity of irritation. In several scrofulous affections of the joints, I have seen more benefit from blisters than from issues, especially when the former have been managed in a particular way. My plan now is simply this. When the blisters are taken off, the part is dressed for the first time with any of the common cerates; but on the second dressing, the whole of the blistered cuticle is torn off, and the raw surface daily dressed with the ordinary blistering ointment, until a considerable slough be formed. The slough is afterwards allowed to heal, and then the same process instituted again, so long as the disease shall remain unsubdued. The irritation of this treatment is frequently extremely great, but I have seen it remove scrofulous diseases, where every other expedient had failed. Whether it be applicable to any cases of consumption, which after all are really scrofulous, must be left for others to decide. But from the evidence before adduced, it is highly probable, that counter-irritation of the skin is not equally applicable to all cases; for even in regard to blisters, we see some patients bear them well, compared with others. One large blister often exhausts a great deal more than several small ones; any many patients are benefitted from the latter, who are hurt from the former. In phthisis, too, some patients are exceedingly oppressed, and others exceedingly relieved in their breathing, by an elevated temperature; and this seems to depend upon some difference in the state or organization of the skin. Those who are relieved by an elevated temperature perspire equably over the surface; whereas in those who are oppressed, the skin becomes hot or dry, or there is only a very partial perspiration, and we may perceive their chests heave with a preternatural effort.

In the preceding hints, the tepid bath has been mentioned as a proper expedient for phthisis. When used in the morning or evening, it often lessens the hectic in incipient, and sometimes even in confirmed cases. But the temperature of it should rarely be beyond 94° of Fahrenheit, the patient should seldom remain in it longer than a quarter of an hour, his skin

should be well dried and rubbed with flannel after he comes out of it, and he ought to rest upon a bed or sofa for some time, lightly covered. If these precautions be disregarded, the tepid bath will frequently do harm instead of good: and indeed when they are observed, it produces exhaustion or irritation in some—so various are the effects of the same measure in different subjects. When there has been any considerable hæmoptoe, I have never ventured upon the use of the tepid bath: but in many instances, where the expectoration has been merely streaked with blood, it has been attended with advantage. Where spitting of blood is connected with high vascular excitement, one would naturally suppose the tepid bath to be inadmissible; but where, on the contrary, it appears to be connected only with irritation and constitutional delicacy, there need be no dread of its employment, provided the temperature be cautiously regulated. When great constitutional debility exists, two states may be coeval, as its concomitants or its consequents: the first a disturbance of action in the capillary arteries, the second a fulness of the venous system. It necessarily follows that when the energy of the heart and arteries is much diminished, that they cannot maintain the natural current of arterial blood, and of course a proportionate accumulation takes place in the veins; and this venous accumulation appears to load and stimulate the capillaries of the arterial system, by retarding the return of the blood through them. These remarks render it probable, that the tepid bath might actually relieve many cases of what are called passive hemorrhages, by equalizing the circulation; for it not only brings a flow of blood from the interior towards the surface, but it communicates an equable tone to the heart and arteries, thereby enabling them to resume their wonted offices. These suggestions, however, are merely thrown out for the consideration of others; and I wish it to be distinctly understood, that they are suggestions only, and not positive recommendations.

In the time of Celsus, the *intraolipta*, or anointer, followed

his business as a distinct branch of the profession: * and we well know, that both before and after, frictions and anointing were frequently recommended by some of the most celebrated physicians of the ancient world. It were of little use to inquire, why these methods should have fallen into neglect and disrepute in modern times; but that they might be revived with benefit to the community in many diseases, is a proposition highly probable, if not quite certain. Beyond the mere rubbing of the skin by dry and warm flannels, I have not ventured in phthisis after the employment of the bath; but it is evident, that Celsus thought frictions applicable in some cases, and his authority is deserving of great respect. There is a principle in human nature which makes us shrink from present pain, even sometimes to the disregard of the ultimate good which that pain might produce; and hence in the application of blisters, in the making of issues, and especially in incisions by the knife, we often find a great reluctance on the part of patients to comply with our wishes. It is the operation of this principle, frequently strongest in uncultivated minds, that has chiefly prevented me from having made fair trials of counter-irritation by the skin in incipient consumption: but as the friction is a much easier way of inducing an universal impression upon the surface, it might surely be worthy of some attention to ascertain its effects in this disease. Indeed it is my design to do so, when favourable occasions shall occur: but I could wish that the subject should claim the investigation of others.

It will have been perceived, that I have not noticed any of those medicines which are usually recommended for phthisis, the fact is, that those medicines have deceived me so often, as to make me doubt, nay to deny the utility of most of them. It is a little singular, that we have an abundance of reputed remedials for those diseases of an opposite class. No great discovery was ever made in science but what has been simple:

* *Sanus homo, qui et bene valet, et suus sponte est, nullis obligare se legibus debet, ac neque madico, neque iatralipta egere.* Cels. lib. i. cap. i.

so simple, indeed, that men have wondered it should not have been made before. And if a specific should be found for consumption, it too will most probably be simple. We have surely had experience enough to convince us of the futility of confidently trusting to any of those medicines which have hitherto been recommended ; and we should not remain stationary in our art by being satisfied with them, but endeavour to explore the virtues of things which have not yet been tried. Digitalis is an excellent drug, in common inflammations of the chest, and in some dropsies ; but experience does not authorize me to say, that it is certainly useful either in an incipient, or in a confirmed phthisis, its effects being fairly weighed. The immediate relief which it sometimes gives, by arresting the pulse, and by exciting nausea and diuresis, is in general completely counteracted by the constitutional shock and nervous irritation which it communicates ; and as for its influence in a confirmed phthisis, however it may alleviate the cough for a time, it will always hasten death, by undermining the little strength which remains in the shattered system. When it was clearly discovered that digitalis greatly reduced the force and the frequency of the circulation, it was a very natural supposition, that it might be of benefit in both the stages of phthisis—in the incipient, by arresting the excitve action which produced or aggravated the tubercles—and in the confirmed, by allowing the lungs so much comparative rest, through its effect on the pulse, as to bring the sanative powers of nature fairly into play. This supposition, too, was the more specious, when digitalis actually appeared to exert an influence over the phenomena of common inflammation. But impartial experience has added another memorable proof, that the anticipations of theory are far more frequently disappointed than realized. When digitalis is carried so far as decidedly to weaken the heart, it seems to occasion great venous congestions of the brain and other vital organs, in combination with a peculiar collapse of the whole system. The consequence sometimes is, especially if he had been previously infirm, that the patient's life may be immediately hazarded ; and

if he should recover from the congestions and collapse, an excessive and tremulous sort of re-action succeeds, which makes his condition often worse than before he took the digitalis. The best way to remove the congestions and collapse produced by digitalis is to give the patient moderate and repeated doses of opium, a little brandy or good wine, and light support. The congestions, I have said before, are peculiar, inasmuch as they are attended by an universal collapse from the first, and in all cases of congestion combined with this collapse, opium will be found an excellent remedy. Digitalis has, through the heart, an effect on the brain, different from that of opium. The first produces venous fulness, the last arterial excitement; and it is on this difference of action, that the opium counteracts the influence of digitalis. When venous congestion occurs from ordinary causes, and when it is connected merely with general oppression, small or moderate blood letting is one of the best remedies; but, on the contrary, whenever venous congestion and universal collapse take place at the same time, venesection would be highly dangerous, if not a mortal measure. In syncope from loss of blood, the venous system is in a state of congestion, and also in the collapse of approaching death; but no practitioner would ever think of bleeding in either of these states, while he would not hesitate a moment to do so on the first attack of that species of apoplexy which depends upon venous congestion. The ancients, from having found the arteries empty after death, concluded that all the blood was in the veins during life; and we perhaps never weaken the action of the heart and arteries beyond a certain measure, without causing a proportionate accumulation of blood in the veins, and thereby destroying the natural balance of the circulation.(p) In every state of collapse connected with venous congestion, whether from loss of

(p) Those who have found it necessary to make a liberal use of the lancet in simple continued fever must have observed the comatose state which often follows blood-letting, especially after a second abstraction, and also how difficult it is afterwards to rouse the system into action. I will just ob-

blood or any other cause, opium communicates an energy to the arterial system of the brain, which may often preserve life; but if other organs besides the brain be congested, it ought to be combined with calomel, as the conjoint power of these two agents rouses the whole arterial circle into activity. If any medicine could be found, which reduced the pulse in phthisis, and neither caused immediate congestion with collapse, nor ultimate arterial re-action with nervous agitation, perhaps it might be of great utility. The hepatalized ammonia probably merits a trial, as Dr. Rollo found it reduced the pulse so much in diabetes; and if it should not answer, another might surely be found amongst some of our chemical combinations. But as for digitalis, it is probable that an increased fulness of the capillaries is not inconsistent with its sedative effects on the heart and larger arteries: for when great venous congestions exist, nature often strives to re-act by the capillary vessels; and hence a flow of urine and a moist skin not unfrequently attend the exhaustion produced by digitalis. Perhaps most of the good, without any of the bad effects of digitalis, may be procured from the cautious use of the tartarized antimony in threatened phthisis, where it may be expedient to lessen the force of the heart; for by small and repeated doses of the latter the pulse may be powerfully controlled, and a state similar to the nausea of seasickness induced, which is sometimes so exceedingly beneficial. The influence, however, of tartarized antimony and digitalis over the heart is different: the former occasions a small and rather quick pulse; the latter a slow, irregular, and rather full pulse; and yet in ordinary cases of inflammation, I have seen a similar result from these two agents over the topical disease through the heart.

Whenever there is a tendency to phthisis, large quantities

serve, that as far as my observation goes, nothing will so soon effect this, as the application of small blisters to the upper and lower extremities. They seem suddenly to excite the capillary vessels by which the heart is soon brought into play.

of acids should be avoided; for by disordering the digestive organs, they may indirectly prove exciting causes. It is notorious in certain ranks of society, that the daily use of acids will produce leanness. Hence young women who have a disposition to grow fat, sometimes take them to counteract this, and often become chlorotic, but occasionally phthisical. The nitric and sulphuric are the mineral acids which I have seen administered *in* incipient and confirmed phthisis, but I have not known them useful, further than the latter sometimes acts on the skin, and as for the citric acid it is merely grateful as a drink; though an experienced physician lately told me that he had witnessed the most striking benefit from the internal use of vinegar in some cases of consumption. A blood-redness of the tongue is not an uncommon attendant on the hectic of genuine consumption. In many instances of common continued fever where a similar condition of the tongue existed, I have observed good effects from the muriatic acid, to the extent of two or three drachms, during twenty four hours, largely diluted with water; but I cannot say whether it might be beneficial or not in phthisis where this blood-red tongue is present; and only mention the fact of its being so in certain cases of continued fever, by way of pointing out an analogous symptom that may perhaps ultimately lead to a practical improvement.

Small and repeated doses of the sulphate of zinc have seemed to moderate the hectic in the last stage of consumption; yet the best measures with which we are acquainted too often fail even to palliate the symptoms. Opium is the chief mean upon which we commonly rely, in this country, for alleviating the sufferings attendant upon the last stage of phthisis; but we should be mindful not to give it in too large or too frequent doses, lest it check the expectoration, and oppress the lungs, through its operation on the brain. For several years past, the Italians have been in the habit of using the prussic acid as a palliative in consumption, and recently it has been given in France where even more than palliative powers have been

bestowed upon it. From a conversation which I lately had with a foreign physician of great discernment and candour, who has often seen it exhibited, it would appear that the prussic acid does possess as high a palliative effect as any medicine now in use; for he informed me, that it lessened the irritation and cough, reduced the fever and pulse, and was very soothing to the feelings of the sick. Not more, I understood, than fifteen drops of this drug, as prepared by Scheele, can be administered with perfect safety in general throughout the day, and even this quantity cannot be safely given at once. A few drops only must be exhibited at first, and then it must be gradually increased, in divided doses, to the above amount,—such great care does this active substance require.

The apparent benefit which I have seen to result from sudorifics and diuretics in some cases of threatened consumption, would alone seem to indicate the applicability of medicines which act upon the kidneys and skin in certain examples; but as my own experience is defective on this point, I recommend it to the notice of others, as well from practical as pathological considerations. Since the diet also affects the condition of the skin and kidneys, we want some information respecting its agency in incipient and confirmed consumption. It is well known, that the quantity and quality of the urine, and the appearance of the skin, can be materially influenced by diet among some of the lower animals, as experienced grooms are fully aware; and, to pass over some familiar facts that might be adduced, it is but reasonable to conclude, from the common analogies of nature, that similar effects would occur in the human species, through the like means. Now as the skin and kidneys both closely sympathize with the lungs, is it probable that the diseases of the latter might be benefitted by certain articles of food which operate on the former? Trifling as it may appear to some, this is nevertheless a subject worthy of investigation, not only as it regards phthisis, but other diseases of the internal organs.

In a former page, a nutritious diet was recommended for

those of a consumptive stock, and I must here re-assert, that it has in general appeared to me decidedly preferable to a spare one, as a preventive of this disease; but though I have advised the moderate use of animal food, and even of mild ale, yet distilled spirits and wine should be avoided as they are poisons to delicate habits. The main consideration in respect to diet is, that it should support, without exciting the constitution; and if this rule be attended to, it will be easy to select the articles of food suitable to different individuals tainted with the latent tendency to phthisis. But what may prevent a disease, often becomes improper when it has once been developed. Accordingly, in an incipient consumption of the lungs my observation would lead me to conclude, that a milk and vegetable diet is mostly superior to every other; and indeed so general an agreement, as to this particular, among the ancient and modern authors, could only have arisen from the conviction of experience. In former ages the milk of the ass or goat was prescribed in Greece and Arabia, not because the physicians preferred it to that of the cow, but because the first was plentiful, and the last scarce in those countries.* We find, however, that this preference afterwards continued more or less among the faculty, even in places in which cows' milk abounded; and though it is now disregarded by most of the practitioners of this country, it still exists in full force in the mind of the public, where medical prejudices always find a last asylum.

Sydenham has extolled exercise on horseback as an almost certain specific for phthisis; but though experience has proved the inefficiency of this, as of every other mean hitherto recommended, yet as a preventive and palliative, horse exercise is deserving of particular attention. There is something peculiar in the effect of riding at an easy pace. It communicates a motion to almost all the viscera, and seems to invigorate the muscular fibre and whole frame; but its great superiority in

*See Blackmore's Treaties, pp. 112, 113.

disease over walking, which quickens the pulse much, seemst to consist in keeping the heart at its usual rate of beating, while the rest of the system has all the advantages of exercise; and hence its speial adaptation to many chronic diseases, where there is that species of functional disorder present, which has a tendency ultimately to pass into structural derangement. Moderate exercise on horseback, therefore, should generally be recommended in fine weather for those who may have any disposition to phthisis, and it will even be found useful in the incipient state of that disease; but the weakness of the last stage generally precludes its use, and then exercise in an open or covered carriage is much preferable, and it is remarkable how well many phthisical persons bear travelling in this way.

Celsus seems to have been fully sensible that when cartilage is once destroyed, it is never regenerated, its place being supplied by another substance;* and Mr. Bedingfield, whose valuable work I have here alluded to before, ingeniously conjectures, that the almost uniform fatality of consumption is owing to the destruction of the cartilaginous matter in the lungs. Certainly the mass of corruption presented in the chest after death, make us almost despair of ever discovering any measure that shall cure phthisis in the last stage. Yet as the suppuration from tubercles is generally slow, as it mostly takes place first in one part of the lungs, and then in another, and as respiration may be carried on by a small portion of sound lung, we must not stop inquiry by deelaring that a confirmed eonsumption is always incurable. Now and then, indeed, we do see patients recover from the true phthisis, even after they have expectorated pus, and though such examples are exceedingly rare, yet the certainty of their oeeurrence

* *In aure quoque interdum rumpitur cartilago. Quod si incidit, antequam pus oriatur, imponendum glutinans medicamentum est saepe enim suppurationem prohibet, et aurem confirmat. Illud et in hac et in naribus ignorari non oportet, non quidem cartilaginem ipsam glutinari, circa tamen carnem increscere, solidarique eum locum* Cels. lib. viii. cap. vi.

should make us increase rather than diminish our efforts: for granting that such recoveries have been effected by nature alone, the very admission is an encouragement to the endeavours of art, since it shows that the disease is not universally fatal, that its cure is not physically impossible. But at the same time we have surely had experience enough to satisfy us, that the inhalation of the gases, which have been recommended, and other tried expedients, are of no real efficacy; and we should therefore direct our attention to the discovery of those agents of nature, which yet lie hid, or which, if apparent, have not yet been applied. If it be admitted that the ulcers in the lungs from tubercles are strictly scrofulous, we have the strongest analogies to conclude, that they are not wholly hopeless; since similar ulcers on the outside of the body can frequently be healed by applications of a stimulant kind. Now as stimulants can be applied to the lungs through inhalation, why should not some be tried, the common operation of which is known to be harmless? The inhalation of the vapour of burning pitch has lately been advised, though its power yet remains to be proved by more perfect and numerous trials; but if this should utterly fail, others ought to be successively tried, with that attention and prudence which the comfort, feelings, and safety of the sick require. Between the scrofulous ulcers on the surface of the body and those in the lungs, there is obviously a material difference. The surface is almost at rest, the lungs are in perpetual motion; and we know that motion generally retards the healing of ulcers. Digitalis lessens the motion of the lungs, yet it does not seem to favour the healing of ulcers, and this probably arises from that general deprivation of energy which follows its use. But if any agent could be found to lessen the motion of the lungs, without debilitating the system at large, it might perhaps be serviceable. We know most satisfactorily, that pressure favours the cure of ulcers, and hence the universal application of bandages, to those of the extremities. What would be the effect of applying bandages completely round the thorax, so that the pa-

tient might breathe chiefly by the diaphragm and abdominal muscles? And what also would be the effect of laying the head and shoulders very low, that the pus might not burrow so much in the lungs from its specific gravity? These are questions, which can only be solved by experience; and it appears to me, that they are not wholly undeserving of attention in the last stage of phthisis.

But if, after all our exertions, it should be found, that consumption is incurable in the last stage, we may reasonably turn with more sanguine expectations of success to the first stage; for as *deranged structure* is but the ultimate effect of *disordered action* in chronic diseases, it does not follow, that, because the first is incurable, the last is also incurable. On the contrary, many instances might be adduced to show, that we actually can arrest disordered actions in their commencement, which if uninterrupted generally lead to deranged structure, over which we have little or no power. From the fairest analogy we have reason to believe, that something yet may be done towards the arrestation of incipient consumption. We cannot cure gangrene of the intestines, but we can stop the inflammation which causes gangrene; we cannot cure caries of the bones, but we can frequently remove the morbid action which precedes and produces that caries. And why should we not hope that some remedy may yet be discovered, capable of preventing the formation or arresting the progress of those tubercles, which finally derange the structure of the lungs?

Shortly after the publication of the former edition of this treatise, Dr. Barlow of Bath favoured me with some opinions on warm clothing; and as observation and experience have satisfied this distinguished physician that the ordinary mode of employing flannel admits of improvement, it gives me great pleasure to insert the substance of his reflections here.

When flannel is worn next the skin, Dr. Barlow remarks, it is almost invariably the practice to keep it on by night as well as by day. This is not only unnecessary, but injurious. The chief advantage of using a flannel dress next the skin results,

not from the actual warmth imparted or retained, an effect which might be obtained to an equal extent by an increase of outward clothing ; but from the uniformity of temperature thus ensured to so large a portion of the surface of the body, and the tendency which this has to keep the highly important, but too much neglected functions of the skin, in an active and healthy condition. During the day the frequent, and oftentimes sudden vicissitudes of our climate are such as to render the effects of flannel in preserving an equality of temperature most valuable. But at night, and during sleep, we are subject to no such vicissitudes ; consequently the same necessity for the use of flannel does not then exist. But while the use of flannel at night thus appears to be unnecessary, there are several considerations which show it to be injurious. These considerations regard both the condition of the body and of the flannel itself. Whatever the wants of the body for warmth during the night may be, they are in general fully supplied by the bed clothes in ordinary use. The body requires no extraordinary warmth during sleep ; on the contrary, there is at such times even a tendency to an increase of the natural warmth. When to this natural tendency the heat caused by flannel worn next the skin is superadded, the effect is to keep the skin in a state of considerable excitement, and to induce perspiration more or less profuse. These effects are not calculated to prepare the body for enduring the vicissitudes of the ensuing day, but rather to render it more susceptible of injury. Again, continues Dr. Barlow, the property which renders woolen cloth so eminently suited to the purposes in view, is that of its being a slow conductor of heat. This property is directly proportionate to its dryness ; and is greatly impaired by its imbibing humidity of any kind. A flannel dress, however, that is worn next the skin throughout the night, becomes so charged with perspiration that its power of conducting heat is thereby greatly increased, and its preservative effects proportionably diminished. Here then is a two fold injury resulting from the prevailing practice of continuing the flannel dress during sleep ;

namely, a diminution of the preservative powers of the flannel and an increased susceptibility of the skin. By laying aside the flannel dress on going to bed, and substituting one of coarse calico, the body is kept in that temperature during the night which fits it for encountering the vicissitudes of the following day, while the flannel is preserved from the deteriorating effects of the nightly perspiration, and is resumed in the morning in a state which contributes both to comfort and protection. A difficulty, Dr. Barlow subjoins, is experienced with most people who have accustomed themselves to the nightly use of flannel, in inducing them to alter the habit.— Fear of taking cold creates our great obstacle ; and disinclination to the feeling of cold experienced at the moment of changing the flannel for the calico night dress, especially in winter seasons, is another. Confidence in the medical adviser, however, is sufficient to overcome the first, and a very little experience to remove the latter ; for after a very few trials the proposed change is found to prove a decided gain, even on the score of sensation, and the gratification derived from resuming a dry and comfortable flannel in the morning, together with the sensible increase of its utility during the day, are found to compensate amply the slight unpleasantness attending the momentary exposure of the preceding night.

CHAPTER VIII.

THE MEASLES.

FROM an impartial consideration of the facts which have come before me, I am inclined to think, that our plan of treating the measles is too uniformly active, when the eruptive fever is developed; and that we should be more fortunate in the main run, if we interfered less with the operations of nature in cases of a mild or moderate character. Some children do well without the aid of medicine, and infants may be easily lost from an excess of applications. It is desirable that advice should not be delayed in severe, and that it should be cautiously given even in slight examples of this disease; as loss of time may be fatal in the former, and too much officiousness dangerous in some of the latter. In briefly discussing the measles, therefore, I shall endeavour to show what modifications require active, and what gentle expedients; and this distinction may perhaps be of some utility to others, as it was by carefully attending to it, that the results of my experience have become more satisfactory than at a former period.

The mere outward form and physiognomy of the measles, like those of the scarlatina, are liable to make us suppose, that there is a great sameness and simplicity in the pathology of this distemper; but the conditions of the general circulation and of particular parts, may be almost as variously affected as in typhus or in the scarlet fever, and indeed they form some

of its most interesting peculiarities. Like every other contagious fever, this has a considerable range of character. In one season it will be slight, in another, urgent, in a third, hold a middle course, and in a fourth, assume all its appearances from the most simple to the most severe: yet upon the whole, the benign and the moderate cases are much more frequent than the violent, for an epidemic only occurs now and then, in which the latter decidedly predominate. Whatever may be the efficient, the final causes of this diversity of type are, first, that the measles are sometimes accompanied by a mild excitement, which begins and ends without producing visceral inflammation; and secondly, that at other times, in their onset, advancement, or decline, they are combined with internal congestions or inflammations, which may terminate favourably or the contrary, according to their degree, or to the time, or to the mode in which they chance to be encountered. It is a disease commonly mildest in the summer when the weather is temperate, and most urgent in the winter and spring when the weather is cold and variable; and so considerably is it influenced by the habit in which it occurs, that sometimes all its varieties may be seen in children of the same family, or of the same neighbourhood. At the time of its prevalence, therefore, we should attend to the states of the atmosphere, and of the constitutions of those who are placed within the sphere of its influence: since these are the two chief causes which vary the effects of the contagious essence, and to them every reigning epidemic owes most of its leading peculiarities. In unfavourable weather we should endeavour to guard even strong children against cold, and to keep the bowels open prior to the infection; as these precautions, with a light simple diet, may do much to prevent serious attacks. The risk of danger will be always greatest in those children who actually labour under some internal disease, or who are predisposed to it, before they sicken of the measles; but especially if that disease, or that predisposition, be seated in the pulmonary organs. For under such a state of things, when the contagion begins to op-

erate, the force of the morbid actions is spent on the peccant part; and that with a rapidity which is sometimes perfectly resistless, whatever plan may be pursued. On these accounts, subjects of this kind ought, if possible, to be removed from the place where the distemper rages, that they may avoid the chance of being infected, until a more auspicious time; and such a step is the more requisite when the children are under four years of age, because they are liable to suffer most from the circumstances here stated, and because they cannot bear the means that may be necessary, so well as at a more advanced age. But when a removal into an uncontaminated quarter cannot be accomplished, the body should be prepared by mild laxatives and a light cooling diet, for the probable reception of the contagion; and the moment that its effects begin to be developed, the greatest care must be paid to ward off any threatenings of mischief in a vital region. Where children have been afflicted with some previous disease, the tone of the constitution is most frequently so much subdued, that it is seldom safe to venture on powerful measures when they are attacked by the measles. It is generally better by an unceasing attention to detect the symptoms early, and to endeavour to counteract their tendency by the employment of a few iceches, a purgative, and a blister,—with the tepid bath, if the skin be of an irregular heat: these applications, if not carried too far, will be borne well at the onset, and may contribute to save the threatened organ from a decided attack; whereas more energetic means might depress the general powers, prevent the developement of an equable excitement, and induce a dangerous irritation of the nervous system.* But in vigorous habits, where there has been rather predisposition than positive disease before the accession of the measles, we may be

* Some children, who had previously been sickly, improve much in their health, when they get through the measles favourably; but diseased subjects more frequently either at once sink under that distemper, or become very strunous after surviving its attack.

bolder, when some of the viscera seem too much congested at the commencement; for then, to the remedies already mentioned, a little blood may frequently be taken from the arm with the greatest advantage, especially if the patient be above three years old.

It was formerly noticed, that young children, and even adults occasionally die of a congested brain without any efflorescence on the surface, from the immediate operation of the contagion of the scarlet fever; and I have had some strong reasons for suspecting, that the same affection too is occasionally produced from the concentrated influence of the miasm of the measles. In my treatise on typhus, I attempted to show, from symptoms and dissections, that more or less venous congestion, always attends the first obscure stage of febrile diseases; and in the preceding remarks on the scarlatina, have given it as my decided opinion, that re-action of the heart and arteries, or what may be strictly called fever, is the natural cure of that venous congestion. If this doctrine be correct, a moderate excitement is favourable in those affections which we are wont to consider as febrile; and that this is actually the case, appears to me an universal and irrefutable proposition. If we could always depend upon the efforts of nature for bringing about re-action, and if that re-action just removed the venous congestions, without becoming excessive, why then there would be little or no occasion for medical interference. But it occasionally happens, that the venous congestion is so great as to overpower the efforts of nature, and that re-action would not take place at all, except through an artificial agency; and even when the re-action is developed, whether by nature or by art, it is not always exactly proportionate to the resistance which it has overcome, but, passing the salutary limit, itself often becomes a disease. In the treatment of fevers then, there are two great circumstances to be considered: the first is, whether nature alone should be left to create the re-action; and the second, whether that re-action be mild or severe, equably diffused throughout the arterial system, or su-

perabundant in particular parts. It may be held as an axiom that the more marked the symptoms are in the precursory stage of fevers, so much the more intense will be the subsequent re-action; except indeed, those symptoms should be accompanied with so great a congestion, as to prevent the developement of the re-action, and thereby at once to extinguish life. The converse of the above axiom also equally obtains, as the re-action is mild in proportion to the mildness of the precursory symptoms. Two objects are, therefore, to be regarded in the first stage of febrile diseases—the one to attempt the removal of urgent congestions without loss of time, and the other to moderate the congestions, even when they are not so urgent as to threaten the destruction of a vital organ. By accomplishing the first object, we may frequently save the life of a patient, which might be lost under the common routine of practice; and by accomplishing the second, we lessen the chances of an inordinate re-action, and thus the chances of danger at the same time.

It must be recollected, however, that the cases are not very common in this country, where nature is not adequate to the creation of re-action; and that both the symptoms of congestion in the first stage, and those of excitement in the second, are often so slight in the measles, as not to demand any vigorous measures. Yet even in the slighter cases of the measles we shall be satisfied, on an attentive consideration, that some venous congestion does at first exist; and hence the paleness of the face, the feebleness of the pulse, the uneasiness in the head, the torpor of the bowels, and the general depression. But as the re-action emerges, these symptoms give place to others, and instead of a deficiency, there is then an overplus of blood in the arteries. The symptoms of congestion in the more striking examples are often distinctly evident soon after the child is first observed to sicken; yet they almost always lessen as the eruption comes out, until at last all trace of them disappears in the arterial excitement. Nature here removes one action by exciting another, and if the last be sometimes

dangerous, it is always less so than the first; and hence we shall find venous congestions upon the whole, more perilous than arterial re-actions. If it were not for the arterial re-action which takes place in idiopathic fevers, many patients would die of apoplexy, or of an engorgement of some thoracic or abdominal viscus. When the efforts of nature are too feeble to create the stage of re-action in the measles, the brain and lungs have appeared to me to suffer the main pressure of the congestion: but such cases are happily so rare, that I have not seen more than perhaps a dozen in the course of my experience, in most of which the eruption came out partially at last. Two cases of this sort fell under my inspection, in which the patients died comatose and convulsed, and the lungs were greatly oppressed in both, before the disease of the head supervened. An interrupted respiration may chemically and mechanically affect the functions of the brain. It may chemically affect the functions of the brain, because the blood finally destined to be transmitted to that organ does not fully undergo the usual changes in the lungs; and it may mechanically affect the functions of the brain, because the attendant impediment to the pulmonary circulation, retards the free return of venous blood from the head. It is one of the prognostics of Hippocrates, that a delirium is bad when it comes on in acute complaints of the lungs; indeed any approach to cerebral disorder may be accounted dangerous in pectoral diseases; and we occasionally see children, as well as adults, who had become unnaturally loquacious, die suddenly in convulsions, while labouring under pneumonia.

But in some incipient instances of the measles, coma supervenes unexpectedly, without any affection of the chest; and though patients commonly expire apoplectic, recovery at times takes place under very unfavourable circumstances. Not long since I saw a child who lay about four days as if in profound sleep, with its head drawn considerably backward, and its pupils much dilated; but, contrary to my expectations, it gradually recovered from this state, after the application of some

leeches to the temples, a blister to the scalp, the warm bath, and the exhibition of active purgatives. In some cases I have seen, before the rash came out, the symptoms most strongly indicate a threatened attack of what is called hydrocephalus internus; but they have almost always readily given way to the abstraction of a little blood, purgatives, and the tepid bath; though I shall hereafter show that the supervention of water in the brain, at a later stage, is no uncommon circumstance in certain modifications of the measles. In the example of a child who had been recently infected, but who had neither watery eyes, sneezing, nor catarrhal symptoms, I pronounced, somewhat hastily, the disease to have an actual tendency to water in the brain; because there were intolerance of light and noise, contracted pupils, great pain in the head, reddish eyes, and extreme restlessness. But on abstracting about three ounces of blood from the arm and exhibiting a cathartic, the rash of the measles appeared, and the disease ran a mild course; and though the measures employed had probably averted the affection of the head, yet the parents of the child felt satisfied that I had mistaken the case, because in the first instance I had not suspected the measles.

Some authors have asserted, that convulsions are favourable in the preliminary stage of the measles; but I cannot consider them strictly so, on account of the symptoms with which they are combined. At the attack of the convulsions, the signs of great venous congestion will be found distinct, the surface pale for want of blood, and the arterial circulation so languid, that the pulse can scarcely be felt: but as contraction of the muscles both accelerates the venous and the arterial circulation generally, and promotes a flow of blood to the skin particularly, can the pressure of the convulsed muscles upon the deeper seated veins, in any measure, relieve those internal congestions, which immediately threaten life? That muscular action accelerates the arterial circulation is universally allowed by physiologists, and well known even to common observers; and that it likewise both accelerates the venous

circulation, and determines to the skin, may be shown by familiar examples. The stream of blood is increased from the vein punctured at the bend of the arm, by moving the muscles of that arm ; and hence we often make patients turn or grasp something in the hand when we wish rapidly to abstract blood. The external veins of every person are more or less distended by exercise, the skin becomes warmer, and the perspiration augmented, from the greater determination of blood outwards ; and these changes are very conspicuously displayed in those who follow laborious occupations. Now in reflecting upon the various effects of muscular action, it has sometimes struck me, whether convulsion themselves might not possibly be the extreme struggles of nature to equalize the venous and arterial systems, how effectual soever those struggles may often prove ; and does not this suggestion borrow some support from the circumstance, that the shivering fit, which is somewhat related to convulsions, usually contributes to bring about the re-action in certain fevers ? Yet were it possible to demonstrate the correctness of such an opinion, we ought not to leave the convulsions to themselves in the commencement of the measles, inasmuch as they are the effects of urgent causes, which ought if possible, to be speedily removed ; and we accordingly find, that measures are then often efficacious, which lessen internal congestions, and determine to the skin, such as small or moderate abstractions of blood, with active purgatives, the warm bath, and blisters.

From the drift of the foregoing remarks, it will appear, that we ought only to use decisive measures in the first stage of the measles, when the symptoms of congestion are immediately urgent ; and even then we should not push the depletion too far, as moderate evacuations, aided by the warm bath, will answer a much better purpose. It must surely have been cases of this character which Dr. Mead had in his recollection, when he said, that it is best, if possible, to bleed *before* the eruption ; for were this principle applied indiscriminately to every instance, it might be extremely pernicious, by far the

greater number of patients requiring nothing more than mild purgatives and tepid drinks. Nay, there are some in whom the signs of indisposition are so slight, that they may be safely left to nature in the commencement; though even in cases apparently the mildest, we should direct parents to watch narrowly the progress of the symptoms; for sometimes before the eruption appears, or just as it appears, a sudden change takes place, and a tendency to coma, or great oppression of the breathing, marks an incipient and serious attack on the brain or the lungs. Yet the consideration of these uncommon occurrences must not be allowed to incline us too strongly to the practice of depletion; because they rather form exceptions from the general character of the early symptoms which, from being milder, require less powerful measures at the attack. And from an extensive trial, I can confidently recommend purgatives as well suited to lessen the congestions in the first stage, and thereby to make the re-action more moderate than it would otherwise have been in the second. What was formerly advanced in respect to the primary symptoms of certain examples of the scarlet fever, may tend to illustrate the point under review; but in the measles there will be no occasion to administer drastic purgatives in nineteen cases out of twenty, and indeed in many they would do harm. Simply procuring about two, or at most three moderate motions in the twenty-four hours, until the eruption appear, will be all that are necessary; and when the eruption has appeared, still we must be more sparing of purgatives than in the scarlatina, although to a certain extent they are then highly useful, as shall afterwards be shown.

It has been my particular wish, both in this and in a preceding publication, to draw the attention of the faculty to the primary stage of fevers, because it has hitherto been too little regarded; to that stage in which the elements of the future pyrexia are formed, and which though occasionally very severe, most frequently seems to suspend for a time many of the functions between health and disease. The venous conges-

tions which exist in this stage of the measles not unfrequently leave a predisposition to local affections, even when they have given way to the impulses of the general re-action; for it is a law in the animal economy, that when the natural action of any part has been diminished, a proportionate accumulation of excitement mostly takes place there afterwards. Now as the force of the morbid actions in the measles, from the first to the last, is generally most concentrated in the respiratory organs, the congestion of the first stage necessarily gives them a tendency to increased action in the second; and hence it is, that the chances of pulmonary, or indeed of any other internal inflammation, are greatly lessened by the generally mild, and sometimes moderate evacuations, which have been recommended in the first stage of the more distinctly marked cases. It is really no substantial objection to this practice, that we cannot be positive whether the symptoms for which we prescribe will always terminate in the measles; since those symptoms are always attended with the risk of constitutional fever, and often with that of topical determinations, and since the same rules apply to them, whether they arise from contagion, from cold, or from any other cause, which first depresses and then excites the system. The sources of what we technically denominate fever are very various; but their grand effects may be reduced to a few similar classes, as shall be explained at the close of this work. In the primary stage of the most remarkable examples of the measles, the vital functions are depressed by a superincumbent load of venous blood: mild or moderate evacuations, therefore, but especially by the bowels and the skin, so lessen the venous fulness, as to render it no greater than necessary to ensure a benign re-action; and indeed in the slightest cases such evacuations are unnecessary, because the congestions are then not more than sufficient for the purpose of effecting the desired degree of excitement.—Moreover, it is not the chest and head only, that may now and then suffer from congestion before the coming out of the rash; for there is sometimes uneasiness in the region of the liver, the

secretions of which are liable to be retarded or vitiated; and this organ, too, is more frequently affected when the subsequent stage of re-action runs higher than most authors appear to have imagined.

Before closing the consideration of this interesting part of pathological inquiry as it respects the measles in particular, it ought to be remarked, that retching or vomiting, but especially the last, seem to be among the most striking means by which nature brings about the re-action; and therefore, it may not be irrelevant to inquire whether we should second these efforts when present, and whether we should imitate them when absent. Now when vomiting has been present without any alarming symptoms, I have always found it best to give nothing auxiliary, except the blandest diluents; but where the lungs have been excessively oppressed, and particularly where vomiting has been absent, I have often seen the most striking relief follow an antimonial emetic, which may fairly be ranked among the most efficacious remedies in pulmonic congestions. In great venous congestions of the head, vomiting is generally present, and it has probably been too much the fashion, from reasoning *a priori*, to regard it as an unfavourable circumstance; in some instances, however, when gently assisted by warm water, it has appeared to me productive of much benefit, though, from an early and perhaps a weak prejudice, I have seldom dared to give emetics in similar cases, unless where the stomach was loaded. We have still much to learn respecting the use of emetics, and the power of vomiting in changing the incipient disorders of the circulation in the first stage of fevers. Having been so much accustomed to the exhibition of purgatives for some years past, we have neglected emetics in a most singular manner; but I am fully persuaded, that they will be found both applicable and beneficial on the first attack of many acute affections, attended with venous congestion.

Between the time of receiving the contagion of the measles and its actual operation, a few days, or one, two, or even three

weeks may intervene ; and from the first signs of sickening to the appearance of the eruption, a period may elapse of twenty four hours, or of several days. In general however, the affection of the skin is later in coming out in this distemper after the formation of the fever, than either in the scarlatina or in the small pox. Several writers have stated, that the rash appears on the fourth day of the fever in the measles ; but as the term fever has not always been strictly defined, their meaning is liable to considerable ambiguity. If under the word fever, these writers comprehend the interval of time between the first palpable signs of indisposition and the appearance of the eruption, the statement is not generally correct, agreeably to my observations ; for I have seen the eruption appear at different periods in different individuals during this interval, as it is then greatly dependent on the states of the systems infected, some of which re-act slowly and others rapidly. But if, as it would really seem, these authors mean by the fever the developement of the arterial re-action, still I must contend, that the rash does not uniformly, does not generally, appear on the fourth day from the first developement of the re-action ; and in support of this opinion, I can most confidently declare, that I have seen the rash come out at all times between the first and the seventh days from the occurrence of the re-action, though perhaps the most common period of its appearance is between the third and the sixth day. To settle this point rightly, we must not fix the general term of the eruption from a particular constitution of the measles, but rather endeavour to deduce it from an extended view of different constitutions ; and probably if we were to make ourselves acquainted with the circumstances under which the rash appears so variously as to time, we should be able to account for differences in this particular, and to arrange them with a natural precision.

The watery, heavy, loaded eye, the catarrhal symptoms, the less diffused appearances of the rash, and the greater feeling of inequality to the touch on certain parts of the skin, are gener-

ally among the best marks of distinguishing the measles from the scarlet fever: and for the welfare of the patient, not to mention the credit of the practitioner, these and other diagnostics, which practical authors have laid down, should be strictly regarded, as the two diseases not unfrequently rage at the same time, particularly in damp weather. The catarrhal symptoms often exist several days before the rash, and seem in the onset to be among those effects of the internal congestions previously noticed: but they are seldom relieved by the eruption at first, nay generally become worse for a certain period afterwards, and are always connected with less or more disturbed action of the arteries, when the fever fully emerges. Though inflammation may and does sometimes occur during the eruptive fever, it must not be rashly supposed present in every instance where the cough is frequent; since, in many cases of measles, there is at that time merely an excitement, which does not amount to inflammation, of the capillaries in the tracheal or the bronchial lining; and although this excitement may maintain a troublesome cough for a time, yet in the end it very frequently abates, like an ordinary catarrh, as the constitutional fever subsides, and as the expectoration of mucus becomes free. In the small pox, we see the peculiar pustules not only upon the surface of the body, but upon the internal fauces, and they have been known to spread even much deeper: now in every case of the measles I suspect that an affection, similar to that of the skin, exists on the mucous membrane of the air-passages; and perhaps in some instances this affection occupies a larger portion of the pulmonic system. In healthy habits, however, it often disappears without any manifest inflammation having been induced; as we may perceive among the children of the lower orders of society, where the measles are so frequently left to run an uninterrupted course. But in constitutions of a different cast, in those predisposed to pulmonary diseases, by original structure, or by incidental causes, the excitement passes on to pneumonia, bronchitis, or to some similar inflammation in the thorax; and it must, there-

fore, necessarily be a point of great consequence to be able to form such a diagnosis as shall enable us to determine when we should use the lancet. By long associations we are led to intermeddle even with all the slighter aberrations from health, without sufficiently reflecting that they may be only temporary, and that the system itself may have the power of returning to its ordinary movements; and indeed we are often prompted to this by the entreaties of patients or their friends, by the high estimation in which the public holds whatever is medicinal, and by that selfish principle which too often prompts us to do something for the sake of appearance, where nothing is actually required. When pain or soreness in the chest, oppressed breathing, general anxiety, and restlessness are absent, in the eruptive stage of the measles, we shall have no occasion to bleed; and where these are present, venesection, either general or local, will almost always be necessary. But sometimes it happens, that the breathing is very hurried, the cough frequent, and the pulse much quickened, about the first coming out of the rash, and yet if we wait a day or so, we shall find the respiration gradually improve; and no doubt Dr. Willan alludes to cases of this kind when he judiciously observes, that those who from doubt, or from some collateral motives, are led to await the event, usually find the pulse become moderate and the uneasy respiration terminate in twenty-four hours. In irritable children, and especially in infants, the respiration often becomes extremely anxious on an attack of simple fever, wholly unconnected with pectoral inflammation; and this is more particularly the case when the bowels are disordered. We must be most careful to discriminate such a state of breathing from that which commonly attends pulmonic inflammation: nor indeed is this difficult, because the former is seldom permanently the same, but varies so much at different times, that the patient will seem now much oppressed, and again easy; whereas in the latter, there are no changes of this sort in the respiration, for it is so considerably oppressed, as never to be entirely easy. Besides, the anxious breathing, which arises

from irritation, is generally increased by the erect position, and that which arises from inflammation more or less diminished: in the first, the child now and then obtains pretty tranquil slumbers, with little motion of the chest; but in the last, the sleeps are always very disturbed, and the chest may be seen heaving up and down with unnatural labour. When any part of the pulmonary system is inflamed in children, both the diaphragm and the abdominal muscles are generally thrown into an inordinate action; so that if the belly and breast be exposed, one cannot fail of being struck with the circumstance; and forcible movements of the last named muscles may often be remarked about the navel. In very young children labouring under pleuritis or any similar affection, we cannot of course obtain an account as to the feeling of pain, soreness, or uneasiness, and the like, that may exist in the chest; but the permanent oppression of the breathing, the above mentioned state of the diaphragm and abdominal muscles, the general restlessness, and the peculiar anxiety of the countenance, may lead to a tolerably correct opinion.

When the mucous membrane of the bronchia is attacked with inflammation in the measles, the face becomes pale, the lips are commonly of a livid or bluish shade, and some parts of the skin are cooler and others hotter than natural; while the child, by being attentively noticed, may be heard to breathe through phlegm lodged in the air passages, and the chest will be seen to heave laboriously. Whenever, therefore, these symptoms occur, with an anxious countenance, and a quickened or oppressed pulse, the practitioner should be prompt in his proceedings; for this is one of the most alarming species of inflammation in the measles, and is perhaps the most frequent cause of death. In fact it assumes the characters of the peri-pneumonia notha, a disease which Sydenham has so well described, but with the nature of which he was unacquainted for want of the light of morbid anatomy; but in all of such examples a careful examination after death will show, that the mucous membrane of the air passages is the part chiefly implicated.

ted in the inflammation, and the bronchia will be found loaded with morbid mucus frequently mixed with pus.

Where there are no signs indicative of visceral inflammation in the beginning of the eruptive fever, the principal thing to be at first ascertained is, the degree of the general excitement of the arterial system: now when this excitement is by no means great, gentle purgatives and tepid diluents will almost always bring it to a favourable close; but when it runs higher, we must increase the evacuations by aperients commensurately, still taking care to determine the blood to the surface, by a bland, warm beverage. It has occurred to me more than once to have seen the mild and the moderate instances of the measles treated variously—sometimes by bleeding and blisters, sometimes by purgatives and tepid drinks, and sometimes by nauseating doses of antimony, according to the different views of the respective practitioners. The results of these opposite methods fully show to me, that the recoveries were the most numerous and expeditious from the treatment which moderately moved the bowels, and determined to the skin; and I am now the more convinced of the superiority of that treatment in such cases, from an attentive review of many which took place in a recent epidemic. From the general drift of my opinions, no one, I think, can fairly accuse me of being afraid to recommend the lancet; but my anxiety is great to guard against future abuse, from the full conviction, that it is too indiscriminately, too rashly employed in this disease; and I must therefore repeat, that in the examples under consideration, it is very seldom requisite, and often hurtful, in very young subjects.

From the earliest records of physic, it has been common to distinguish what are denominated idiopathic from symptomatic fevers; and though this distinction may have been too strongly insisted on, as shall afterwards be shown, yet it is certainly of practical utility to attend to it on some occasions. For in the fevers which we strictly denominate idiopathic, the local affections of an inflammatory nature are invariably see-

ondary of the general excitement, and not a primary part of the original disease. It is true, indeed, that an ancient doctrine has lately been revived, with additional claims to notice in which every fever is considered as the product of some local inflammation; but this doctrine, however beautiful from its simplicity, and however respectable from its ingenious support, is so far from being generally correct, that local inflammation is far more frequently the effect than the cause of the constitutional disturbance termed fever.(o) If we want any proofs of the truth of this assertion, they may be found abundantly in some of the febrile affections of children, which commence without any mark of local inflammation, and yet in their advancement are accompanied with clear traces of visceral inflammation; and this is so liable to occur in the measles, that attacks unalarming in the onset may become serious towards the close, from the supervention of an inflammatory disease of some vital organ.

In the apparently moderate instances of this disease, small doses of castor oil, of the sulphate of magnesia with the infusion of senna, or of rhubarb and magnesia, may be so exhibited as to procure about two evacuations in twenty-four hours, during the progress of the fever; and when the excitement is somewhat greater, four or five grains of calomel may be daily added to the above medicines, and this preparation is then more necessary, as the abdominal secretions will usually be found vitiated. These simple methods, with an occasional small opiate at bed time, and a strict antiphlogistic regimen, will answer every purpose in a large majority of such examples; and where the chest may be seemingly threatened by a topical determination of blood, an antimonial emetic, with the tepid bath will frequently preclude the necessity of having recourse to more vigorous means. Indeed a little of the pulvis antimonialis may

(o) This is *apparently* true, but by no means certain, especially with regard to eruptive diseases. The fever, it is true, shows itself first, but it is highly probable that some peculiar state or condition of the system which precedes the eruption is the cause of the fever.

often be combined advantageously with the laxatives, as it tends to keep up an action on the skin, aided by the warm diluents. Some authors have stated, that even moderate purging is apt to cause a retrocession of the rash in the measles, but I have not met with an instance of this kind in my own practice; and so far from having found laxatives at all hazardous, when properly administered, they have almost invariably appeared useful throughout the eruptive fever. The dread of aperient medicines is probably to be attributed to the influence of an old doctrine which was once in the highest repute, and which, descending from the faculty to the public, is still firmly rooted among the common people, especially in the minds of old nurses. The abettors of this doctrine supposed that, by emptying the vessels, the peccant humours, which ought to be discharged, were prevented from coming out by the skin, their proper emunctory; and upon such an airy basis were founded many imaginary fears, which long turned professional men from an inquiry into facts, by which they might have been at once dissipated. When a copious diarrhoea occurs spontaneously at the beginning of the stage of re-action, we sometimes see it check the progress of the rash, while the breathing at the same time grows more oppressed; and such occurrences should caution us against instituting any thing like hypercatharsis, which might have similar effects at this period. There is a very striking sympathy between the lungs and the skin, and between the skin and the bowels, in the measles; insomuch that excessive purging diminishes the flow of blood too much towards the surface, and this effect re-acts, in its turn, unfavourably on the respiratory organs. But on the contrary, a gentle action on the bowels is always beneficial: it restrains the general excitement, and wards off topical determinations, without the risk of oppressing the chest. In proportion, therefore, that excessive purging is to be censured, so is the moderate use of aperients to be commended in the class of cases which has just been considered; but during their exhibition and operation, the skin should not only be guarded from cold,

but tepid diluents should be given to maintain the circulation of the surface.

The excitement, then, may be so much controlled in numerous cases of the measles, by laxatives, antimonials, and the antiphlogistic regimen, that we may dispense with venesection; but the certainty of this fact should not make us invariably rely on these measures, as the disease is not of one uniform character. Inflammation may suddenly supervene in the beginning of the eruptive stage, or it may gradually arise during its progress. When it supervenes suddenly, it is in general strongly marked, but when it arises gradually, it may be insidious for some time: and these two forms of inflammation, the one acute and the other sub-acute, should be equally the objects of consideration, that we may attack the first promptly, and not be deceived by the second. The signs of the acute inflammation of the chest have been already enumerated; and the sub-acute inflammation of that quarter may be best detected by daily attending to the respiration, which becomes more or less oppressed as it supervenes. The mucous membrane of the trachea or bronchia, the pleura or the parenchyma of the lungs, are the parts most frequently attacked by inflammation: but sometimes it begins about the tonsils or in the pharynx, and, suddenly or gradually spreading to the windpipe, constitutes the laryngitis of some recent writers, or the more common affection called the croup, or, being deeper seated, bronchitis; though the fact is, that the mucous membrane of the larynx, trachea, and bronchia, is most frequently more or less affected throughout its extent. When the mucous membrane of the windpipe is inflamed, the secretions of the villous coat of the intestines commonly become morbid: indeed, there is a sympathy between tissues of the same structure, which, though Bichat has alluded to it, is still very open to investigation.—Next to the lungs, the liver is most liable to inflammation, which in that organ is generally so obscure as to be masked under the pectoral symptoms: but it, or some similar disease in the belly, may always be suspected where sickness of vom-

iting continues after the coming out of the rash ; and where a diarrhoea occurs at this early period, with occasional griping and hurried respiration, that also is often connected with some abdominal inflammation. Flatulence of the stomach, unnatural stools, and pain or soreness on pressure, are among the surest signs of such affections ; and when the patient cannot turn upon the left side without uneasiness under the ribs of the right, the liver is decidedly disordered. Before the appearance of the eruption, clear marks of cerebral fulness often exists, but almost always recede after its free appearance ; so that inflammation of the brain is rare during the height of the measles, except the rash suddenly recedes. Indeed, the sudden and premature fading of the rash is most frequently the commencement of some internal inflammation or congestion of a serious kind.

When there are sufficient grounds for inferring the existence of inflammation in the measles, general venesection should mostly be employed as early as possible ; and in those obscurer cases, where the symptoms rather indicate than reveal inflammation, the best general rule will be to try local bleeding, as this cautious procedure may do good in the beginning, and cannot do any harm. It should, however, be our constant endeavour to proportion the measure of the depletion not only to the degree and stage of the inflammation, but to the powers and peculiarities of the patient. We shall hardly ever have occasion to regret when we bleed at the onset of inflammatory diseases ; but when we venture upon general venesection late, we most frequently risk whatever chances of recovery may remain. In the commencement of inflammatory diseases we operate on vantage ground, and may proceed boldly ; but our position is reversed in the last stage, and great caution is then necessary at every step. The strength is only suppressed in the first stage, it is exhausted in the last. General bleeding arrests the topical disorder in the first stage, without weakening the system further than is necessary for the removal of that disorder ; and the general debility resulting from the

loss of blood is much less than that which the unimpeded disease would have caused, not to mention the tendency of inflammation to derange the structure, or to destroy the functions of the affected viscus. But towards the close of inflammatory diseases, the energy of the heart and arteries, with that of the whole body, is wasted, from the local and universal excitement; and general venesection at that time exerts little or no influence on the topical disorder, whilst it has an inverse one on the system at large, which it may immediately and mortally overpower. Yet between the first and the last stage, and particularly in sub-acute inflammations, there is a middle one in which moderate venesection is often very useful: moreover, it is a principle of physic, that whenever any just reason exists for hesitating about the employment of general blood-letting, local should always be preferred; and in young children the latter will sometimes do much good, when properly assisted by purgatives and blisters. Great difference of opinion prevails among writers relative to *general* blood-letting in the acute complaints of young children, some advising, and others censuring the measure. In this, as in every medicinal dispute, we must endeavour to separate our prejudices and partialities from those fixed principles which an unbiassed experience has established. Sydenham asserts, that general bleeding may be as safely performed in young children as in grown persons; and he proves its efficacy in those, by having employed it successfully in peripneumonic fever, in convulsions from dentition, and in severe cases of hooping cough. But, although on the whole, the depletory practice has maintained its ground in the measles since the time of that illustrious physician, many practitioners have abandoned general for local bleeding in very young children; and so far as I have been able to collect from modern publications, the change is not confined to this disease alone, but has been extended to most of the acute affections of such subjects. One would naturally suppose that this change, sanctioned as it seems to be by numerous authorities, was a substantial improvement; never-

theless, perhaps, a candid inquiry might prove, that if the older authors neglected local bleeding too much, the modern have committed a similar mistake with regard to general bleeding in young children; for I believe it will be found, that in some instances general is preferable to local bleeding, and *vice versa*, whilst again in others a combination of both may be best. In all the most acute attacks of the visceral inflammation of young children, general is better than local bleeding in the first instance, because it makes a greater impression on the universal excitement, and on the topical affection; but in the less urgent attacks of disease, where there appears to be rather increased determination to, than positive inflammation in, an internal part, local abstraction of blood is perhaps superior.

An expert surgeon will hardly ever be baffled in bleeding young children; for if a vein cannot be found at the back of the hand, or at the bend of the arm, a branch of the temporal artery, or the external jugular vein, may easily be opened, but especially the latter; and indeed the external jugular is decidedly the best place to bleed children, when we are desirous to free a vital organ from fulness by the rapid abstraction of blood. The integuments immediately lying over the external jugular vein may be drawn up between the fingers, and then cut transversely, the better to expose this vessel; after which it ought to be pierced, very slightly oblique, and the blood will commonly flow in a stream, if the vein be pressed by the thumb a little below the opening. Or when the right jugular vein is opened, a bandage may be passed over it and fastened under the left arm pit, its direction of course being reversed when the left is opened; but if the operator can secure the vein from rolling, he may at once penetrate it through the integuments, which is often the best mode. When a sufficient quantity of blood has been taken away, the vein should be carefully secured, and frequently examined afterwards, if the child be restless; for, owing to an emission of such precautions, I have known it bleed again very profusely and dangerously,

but especially when children had been neglected in the night.* But after having made so many preliminary observations respecting venesection, it may be naturally inquired, how much blood ought to be taken away in the inflammatory diseases of young children? It would be impossible to impose any rule correctly applicable to every case. At the completion of the first year, three ounces may be accounted a moderate bleeding, four ounces at that of the second, and five at that of the third; but after a child has passed his fourth year, and has been tolerably healthy before, he will bear general bleeding much better than prior to that period. Some surgeons of my acquaintance draw blood much more freely than above stated in the inflammatory affections of young children; and on some occasions, I have myself gone considerably further with advantage, but then the symptoms have been extremely violent. It has always appeared to me one of the nicest points in the practice of physic, to bleed young children judiciously when attacked with visceral inflammation; for if we stop too short, the inflammation goes on and destroys them: and if we advance too far, the excess of depletion is destructive, though it should subdue the inflammation. The young differs from the mature constitution in having a more intimate and exquisite relation, by sympathy, between the vascular and the nervous systems; so that more powerful effects are produced from depletion in the one system, and from irritation in the other, than

* A professional friend bled a child, that laboured under the croup, from the external jugular vein; and the difficulty of breathing continued so great afterwards, as to force the blood out repeatedly from the orifice, though compresses had been carefully applied. At last he passed a very fine needle through the incision, which he closed with the twisted suture, after the manner that the veins of some of the lower animals are secured. This answered the purpose completely. The child, however, had previously lost an excessive quantity of blood, but it ultimately recovered. In opening the external jugular vein in children, we shall perpetually expose them to the risk of hemorrhage, if the vessel be cut across; but this will seldom be the case, if it be divided in a very slightly oblique direction, as has been already recommended.

are observable in adults. Nervous irritation hurries the circulation more in children than in men ; and loss of blood produces more irritation in the former than in the latter. Now we hardly ever see children labouring under any inflammatory complaint without the nervous system being highly irritated at the same time ; and we must constantly bear in mind, that we have a double object in view—the first, to arrest the inflammation, and the second, to allay the irritation. It is on account of this mutual relation, that moderate bleedings are generally so efficacious, and large ones frequently so hurtful in the inflammatory fevers of children ; for the first check the inflammation without increasing the irritation, whereas the last increase the irritation to so high a degree, that it often exhausts the vital energy. Let any one attend to the pulse of a young child after moderate bleeding in an inflammatory complaint, and he will feel that it is generally calmer than before ; but after profuse venesection, he will find it tremulously rapid, the whole system participating in the nervous agitation. After bleeding, therefore, it is of great consequence to keep children as tranquil as possible, and if much irritation should supervene, it ought to be allayed by the tepid bath, or by an opiate ; indeed, where very great irritation succeed venesection, I am confident that many children may be saved by the exhibition of a few drops of laudanum, with a little light food afterwards.

When inflammation attacks the pleura during the eruptive fever, it generally spreads to the lungs, so that the latter after death will frequently be found harder than natural, from an effusion of lymph into their substance ; and this appearance of the lungs of children who die in the measles is perhaps more common than after the fatal termination of simple pneumonia from cold, or a like ordinary cause. In attacks of this nature, it will commonly be best to combine general and local bleeding at the same time ; for the first will directly abate the force of the universal excitement, which partly maintains the topical disease, and the last will have a direct influence upon the in-

flamed portion of the pleura, by reason of the free anastomoses between it and the integuments of the chest. When these steps have been taken, but not till then, a blister may be beneficially applied over the site of the pain. It has sometimes struck me very forcibly, that the precipitate application of blisters to the chest, before general or local blood-letting, is a prejudicial practice; at least, I have occasionally seen hydrothorax rapidly follow it, from the increase of the general and topical excitement which blisters, thus applied, had apparently produced. This point, therefore, is perhaps deserving of further investigation in the acute pulmonary inflammations, to which it chiefly relates. In conjunction with the above measures, purgatives should be moderately administered; but more especially if the liver or some other abdominal viscous is simultaneously inflamed. Affections of the chest may not only exist simultaneously with those of the liver in this distemper, but they may also follow as an effect of inflammation in the latter organ, and then the mucous membrane of the trachea is more liable to be attacked. When some of the thoracic viscera are solely inflamed, *laxatives*, rather than purgatives, should be exhibited; as the last often tend to diminish expectoration, an effect rarely witnessed from the first. When the mucous membrane of the trachea is itself inflamed, or when the bronchial passages are loaded with phlegm from pulmonic, pleuritic, or hepatic inflammation, an antimonial emetic frequently gives great relief; and it may sometimes be advantageously repeated when the secreted mucus so accumulates as to impede the respiration, and thus to oppress the whole system. In such examples, the continued use of nauseating doses of antimony are sometimes highly beneficial after the operation of an enctic. If the breathing be laborious from any pulmonary inflammation or congestion, nature often seems to attempt their removal by a copious effusion of serous fluid from the capillaries of the air passages: where this effusion is very freely expectorated, patients generally do well, but if it be retained as it is secreted, it not unfrequently tends to produce suffocation, particularly in children;

and it is in cases in which the expectoration is defective, that the shock of an emetic, by dislodging the phlegm, and inducing a change in the action of the heart may save the life of some patients. The warm bath, strongly impregnated with salt, is often beneficial in pulmonary inflammations, but especially in those of children. After its use I have often seen the wheezing and dyspnoea much abated; and indeed it may be ranked among the best secondary means for such affections. It may be recurred to at any time when the general habit is highly irritable, or the respiration greatly oppressed; and under these circumstances it sometimes has all the soothing effects of an opiate, besides relieving the chest by means of a copious perspiration. But still I must again be allowed to caution the practitioner against an excess, or a deficiency of depletion. There is a golden medium between these extremes, which at once arrests inflammation, without inducing general exhaustion, or a consequent arterial re-action combined with nervous irritation; and this golden medium must be the more particularly observed with children labouring under inflammations, as they may be equally lost by too small, as by too large evacuations. Nor should we continue to tease children, as is often done with adults, by a long succession of various expedients, as this would exhaust the strength, even if it subdued the disease. All our efficacious agents should be brought to operate within a short time, and then we should endeavour to allay the united irritation of the disease and of the remedies by mild treatment; for if we fail to stop the inflammation in the first instance, by persevering in active and irritating measures, we shall only contribute to precipitate the patient to the grave.

It must not however, be supposed from what has just been written, that inflammation is an invariable occurrence during the eruptive fever: since, for my own part, I have not very often seen it take place where proper attention has been paid to lessen the congestions in the first stage, and to moderate the excitement and allay the irritation in the second; though at the same time it must perhaps be admitted that inflammation

is not uncommon at this period, when the early symptoms have been mal-treated or neglected. Many authors state, however, that inflammation is not very common at this period of the measles, though from the writings of Morton, Mead, and others, it is clear that epidemics have occurred, which were throughout most decidedly inflammatory; and this appears to have been particularly the case in the time of the last mentioned writer, for he says, that the measles always brought with them a peripneumony which required bleeding. But one of the most remarkable accounts on record of this distemper being combined with inflammation during the eruptive fever, is that of Sir William Watson, in the fourth volume of the Medical Observations and Inquiries; though it is certainly to be regretted that he designated the epidemic which he saw as a putrid species of the measles. This defect, however, was interwoven with the pathology of the times, and is not, therefore, strictly his own. So far have we advanced since then, that no correct writer would now call any disease putrid, the primary symptoms of which were highly inflammatory. But if Sir William erred as to the imposition of the name, it must be allowed that he has most ably illustrated the nature of the epidemic; and his division of the symptoms into a first and second stage is a master-piece of pathological arrangement. In the first stage, the inflammation ran high, and active depletion was useful, as nine patients out of ten were saved in the worst modifications: whereas in the second stage, this practice was entirely inadmissible, on account of the general collapse, and the local derangements which the first stage had effected, when it held an uncontrolled progress. Dr. Willan has attempted to show, that Sir William mistook the scarlet fever for the measles; but the ground of his objections is perfectly untenable, and it is to be regretted that this able physician should have advanced so vague an opinion on the subject. Among numerous proofs that might be adduced in support of the accuracy of Sir William Watson's judgment, it is enough to mention, that the peculiar, sloughy sore in the throat, which

attends all the aggravated forms of the ardent scarlatina, was absent in the disease that he has described: indeed, the two most prominent peculiarities of the epidemic, the early appearance of the eruptive fever, and the putrid symptoms in the last stage, I have myself sometimes witnessed in the measles. The history of such violent modifications of this complaint is well calculated to caution us respecting that variety of form which all epidemics are liable to assume; since it is one of the most common and lamentable errors of systematic writers, to lay down limited rules of treatment under a certain name, as if the character of the disease thereby designated were invariably the same.

One or two observations have already been made concerning the irregularities in the character of the rash, but it may not be amiss, perhaps, to be somewhat more particular on this point. In most of our methodical works it has been stated, that the sudden and premature retrocession of the rash is followed by dangerous symptoms: but although this is the case in many instances, yet in some no bad symptoms whatever supervene, and therefore the assertion has been expressed in too general terms. Whilst in attendance upon patients labouring under the measles, I have commonly left directions to immerse them in a tepid bath of salt water, immediately on the untimely fading of the eruption: and this expedient, with frictions of the skin afterwards by warm flannels, has generally answered every purpose in the slighter, while it has contributed to relieve even the more urgent examples. Rhazes seems to have used the vapour bath and frictions in occurrences of this sort; and certainly if we can only restore the eruption by a free flow of blood to the surface, the relief will most frequently be immediate and permanent. Cold applied to the skin and an attack of some visceral congestion or inflammation, are the most usual causes of repelling the rash before its common time: but in two or three instances I have seen it disappear permanently after a copious venesection,—a proof that the eruption consists in some peculiar state of the extreme

vessels, without any effusion under the skin.* If the partial or general fading of the rash be connected with some visceral congestion or inflammation, the plan of treatment must be pursued which has been before pointed out for similar affections ; and it must be recollected, that in urgent instances the execution of this plan must be prompt and decisive, the local congestion or inflammation being then paramount to every other consideration. On such occasions, the lungs, the brain, the liver, or the bowels, in general bear the pressure of the internal disorder. The affection of the lungs may be known by the sudden and marked disturbance of their functions, and that of the brain by coma and delirium, the first sign of congestion, and the last of inflammation ; whilst the affection of the liver or bowels will be denoted by some abdominal uneasiness, which is for the most part combined with an apparent looseness, and therefore we must be mindful not to confound an inflammatory attack of this kind with simple diarrhoea. And at the same time we ought to be equally attentive not to mistake for genuine coma, the mere heaviness or sleepiness which so often occurs in the beginning of the measles, from which the child can always be roused at pleasure, and which disappears as the rash comes out ; for although this heaviness or sleepiness be an indication of a degree of cerebral congestion, yet it is generally cured by the eruptive fever, or may be removed by laxatives ; whereas the genuine coma is always alarming, it requires more active measures, and is attended with twitchings, startings of the tendons, convulsions, or with an obvious bending back of the head towards the spine. After an attack of the measles, when all cause of present apprehension is past, and when the eruption has faded at its usual term, children often fall into a long and quiet sleep, in a natural position, and with a warm, moist skin, slow pulse, and gentle respiration.

* Whenever faintness is induced by bleeding in the measles, the rash almost always disappears either entirely or partially, or at least it becomes much less vivid : but it generally returns to its ordinary state as soon as the re-action again takes place.

But this is only the tranquillizing repose of nature, which succeeds disease, like serenity after the storm ; and it is neither to be confounded with coma nor interrupted, being almost always a certain presage of convalescence. There is, however, one congestive disease connected with irregularity in the eruption, which deserves something more than general remarks, on account of its uncommon and serious character. Occasionally children are at once attacked by an extreme difficulty of breathing, mostly without, or with very little expectoration, on the first appearance of the rash, which either soon entirely recedes, or remains out partially, and is of a darker colour than natural. The face in such instances is very pale, and the skin usually of an irregular temperature, cold or cool in some places, and of a preternatural heat in others, while the pulse is low, quick and struggling. The patient, if not promptly relieved by the warm bath, moderate bleeding, an antimonial emetic, a purgative, and a blister, sinks rapidly under an apparent load of phlegm in the bronchia, with wheezing and the most laborious respiration ; and on examining the body after death, the lungs will almost always be found congested with dark blood, the capillaries of the mucous membrane of the bronchia highly injected, and the air passages obstructed by an effusion of unnatural mucus. The pathology of this form of the measles seems to resemble that of certain cases of spasmodic asthma, in which there is venous congestion of the lungs, with an obstruction in the circulation of the capillaries of the bronchial lining, and in which a mucous effusion takes place into the bronchia, apparently as an effort of nature to relieve the respiratory organs from the great surcharge of blood. But as children cannot bear an oppression of the lungs so well as adults, so they far more frequently sink under its influence than the latter. In union with the means above stated, I have seen in some instances of the disorder under discussion the most decided benefit, after depletion, from a large dose of calomel, a little camphor and pulvis antimonialis with a few drops of laudanum, this combination acting powerfully on the skin ; though, upon the

whole, bleeding, blisters, antimonials, and the warm bath are the most to be relied on in such concentrated attacks of pulmonary affection.

In the most notable forms of the irregular measles, where the excitement is either suddenly suppressed or very unequally developed, the disease does not run a determinate course, generally ending fatally or favourable before the usual time; and the same observation obtains in those irregular forms of the scarlet fever which have been already discussed, and is perhaps alike applicable to the small pox, the plague, and genuine typhus. But where the excitement is universally developed, the measles, like some other exanthemata, have a sort of determinate duration, whatever may be done. The cause of this probably is to be sought in the continued irritation of the morbid principle generated during the excitement of the measles, by which the complaint acquires the property of infecting others indefinitely, who have not previously been under its influence. This determinate duration of the measles, and similar distempers, has led some medical writers to doubt the efficacy of medicine; since they seem to conceive it cannot be of any material benefit, seeing that it has not the power of controlling the continuance of the disease. Nothing, however, can be more fallacious than such an argument; for if it be granted to the full, that medicine cannot shorten the measles, still it does not follow that it is of no use. When an universal excitement of the arterial system takes place in a sound subject, it is at first unaccompanied with local inflammation, and sometimes ends without producing any: but if it be not moderated, even in such favourable habits, it not unfrequently involves some important organ in inflammation during its advancement; and when such an excitement occurs in a constitution where some viscus had previously been in a weakened or faulty condition, that viscus is sure to become inflamed, from the mere impulse of the hurried circulation. In fact, the more cautiously we investigate the primary and successive phenomena of febrile diseases, the more we shall be convinced that local inflamma-

tion is always the result of the general excitement, in those fevers which are ushered in by a cold stage; and as the seat of that inflammation is generally determined by some latent defect which had before existed in the organ attacked, so the weakest habits are the most, and the soundest the least subject to visceral inflammations from any general shock that takes place.

The cold affusion has been successfully tried in the eruptive stage of some cases of measles; and where the heat of the surface was intense, I have myself in a few instances, used the tepid affusion with apparent advantage. Still, however, the skin is frequently so susceptible of external impressions, and the pulmonary organs thereby so liable to be affected, that I suspect the cold affusions will never be generally applicable, as in the ardent and open forms of the scarlet fever. It is true, among the lower orders of society, children are not unfrequently allowed to go about without restraint in the air, while labouring under the milder attacks of the measles; and as several thus exposed pass through the disease well, this alone affords proof that the application of cold to the skin is at least not prejudicial in such examples. But then, again, in the greater number of those cases to which I have been called, where the rash had suddenly receded with alarming symptoms I found that the children had been negligently exposed to cold air; and surely examples of this nature authorize us to infer, that however harmless such an exposure may sometimes be, it is at other times highly dangerous. We therefore seem to want facts to enable us to determine under what precise circumstances the application of cold to the skin is useful at one time, and prejudicial at another. In many instances of the measles, great care is even required to regulate the temperature of the rooms where the patients are confined; for I have repeatedly seen pulmonary inflammations follow the too liberal admission of cold air, where the skin was morbidly sensible to the variations of the surrounding atmosphere. We must, then, act with becoming caution in respect to advising any measure

which makes a powerful impression on the surface; and when we find the sick complaining of chilliness in an ordinary temperature, we shou'd not even employ the tepid, much less the cold affusion. Indeed, having in no instance dared to use the latter, I am totally incompetent to give an opinion respecting the circumstances under which it ought to be recommended; but reasoning from the analogy of the influence of cold air, I am naturally led to infer, that its use will be found very limited in this disease. It must not, however, be presumed from the tenor of these remarks, that I am adverse to ventilation in the measles; on the contrary, I think it highly beneficial, when properly conducted during the eruptive fever; being fully satisfied, that if a cold atmosphere is often hazardous, a close stifling one is equally, if not more so, in every variety. So far as my observation has extended, I should decidedly say, that a large, airy chamber is in general best for rubeolous patients; though at the same time, that the temperature should be as equably regulated as possible, between the ranges of 50° and 60° of Fahrenheit's scale. That in the main a moderate degree of warmth is most favourable to the measles, would sufficiently appear from their generally being less severe in mild than in cold weather, and surely this well-known fact should teach us to surround our patients with an agreeable temperature, rather approaching to that of our summer than of any other season. By way of more effectually guarding against sudden impressions on the surface, aperient medicines ought commonly to be given early in the morning, that they may operate before bed time; for when a child is disturbed by the operation during the night, particularly in the spring or winter, he is more apt to receive cold in this disease, than during the day, when the chamber is usually of a more congenial temperature. Indeed, at all times during the action of purgatives, we should be cautious in exposing the surface, and therefore the use of a bed pan is frequently requisite: but such wariness is unnecessary in the simple and inflammatory scarlatina, the subjects of which bear the application of cold air

to the skin, not only without prejudice, but with advantage in the height of fever. Some practitioners of my acquaintance are very partial to the use of the carbonate of ammonia in the simple cases of the measles, and give it both during and after the eruptive fever, by way of determining the blood to the surface ; and when there were no decided evidences of inflammation, I have certainly seen it useful on some occasions by creating a gentle perspiration, while the patient was kept in a regulated temperature.

Nor is it during the eruptive fever only, that we have to guard against too low or too variable a temperature ; for the greatest attention is required in that respect when the rash fades away. Most of the inflammatory affections which follow the measles arise from imprudent exposures to cold : and therefore I am fully confident, that many children might be saved by confining them within doors, and by clothing them properly for some time after that complaint has disappeared. These precautions should always be adopted in the winter and spring. Even in summer convalescents should only be allowed to go abroad in the middle of fine days, and not without some additional apparel. It has been before noticed, that the pulmonary organs, are more particularly affected in the measles than other internal parts ; and hence we more frequently find the predisposition engendered in them, which is converted into inflammation when cold is applied after the retrocession of the rash. Nevertheless, the lungs are not the only internal organs which are liable to suffer during the developement and rise of the fever, since we often have evidence of something morbid in the hepatic and intestinal secretions ; and hence a diarrhoea is apt to arise afterwards, which Sydenham supposed to proceed from a flux of the peccant effluvia on the lining of the bowels, but which is almost always connected with increased action of the liver, as well as of the villous coat of the intestines. The brain is sometimes unusually affected in the beginning of the measles : and though the free eruption on the surface generally suffices to remove that affection, yet it some-

times leaves a tendency to, and is followed by the complaint called hydrocephalus. If we turn from the interior to the surface of the body, the skin and the eyes appear to participate largely in the morbid actions of the measles, but the skin in particular, over which the disease may be said to be diffused, and upon which its main force is spent in the simpler attacks; and hence, too, originate the predisposition to disease in both these organs, which are so often attacked with inflammatory disorders, when the eruption has abated. It is not, however, these influence of cold alone that may produce any of the affections above mentioned, after the termination of the measles; for an improper diet, or stimulating drinks, may create an universal excitement, and that again so re-act on latent and local predispositions, as to produce acute, sub-acute or chronic inflammations. So far from rich food and stimulating drinks being requisite during the convalescence of young or naturally robust subjects, evacuations by purgatives are frequently required to restrain the excitement, which naturally succeeds the stage of collapse; and it ought to be our business daily for some time after the subsidence of the original fever, to regulate the returning tide of the arterial system, that it may not pass the boundaries of health, and become the occasion of disease.

From the foregoing hints, then, it would appear, that inflammatory attacks are liable to take place internally as well as externally, after the measles themselves have entirely subsided. When any part of the lungs is the seat of inflammation, the treatment already laid down must be pursued according to the nature of the inflammation, and to the age of the patient. Nor must we fail under these circumstances to make due allowances for whatever degree of debility may have been induced by the prior excitement of the eruptive fever; and if the symptoms should have run so high, during the continuance of that fever, as to demand the lancet, the depletion must be still more cautiously proportioned to the powers of the patient when inflammation again occurs, after the disappearance of the eruption. In subjects who have been much emaciated by the measles,

and who are afterwards afflicted with visceral inflammation, considerable care is often required as to the applications of blisters; for the blistered portion of the skin is sometimes liable to run rapidly into gangrene, or else it becomes a sloughy sore, which is very difficult to heal, and which occasions an excessive irritation. But where a tolerable degree of constitutional vigour remains after the abatement of the measles, we need have no dread of applying blisters when a visceral inflammation occurs; for they rarely produce sloughy sore, and when they do, the general system does not suffer so much from the irritation of it, as to counterbalance the local advantages. In cases of this nature, the blistered part should occasionally be washed with a weak solution of the sulphate of zinc, or an aqueous one of opium and generally dressed with the common brown cerate; but when the pain is extremely great, a poultice often gives considerable relief, and gentle purgatives, followed by small opiates, will always be beneficial.—When a diarrhoea arises after fading of the rash, it ought never to be restrained by astringents, for it is an effort of nature to carry off an inflammatory excitement of the abdominal viscera, and of the general habit. The symptoms of abdominal inflammation have been sometimes so distinct in this sort of diarrhoea, that I have ordered venesection, and with the most striking benefit; but in a large majority of examples, I have found nothing more requisite than a dose of calomel or castor oil now and then, with mucilaginous drinks, and a small opiate, or the warm bath, occasionally to allay irritation. For my own part I must confess, that, partial as I am to calomel in febrile and inflammatory complaints, I do not like to exhibit it largely or repeatedly when the system has been raised from a state of collapse into a second excitement; for in that case an unusual degree of nervous irritation mostly exists, which is often much aggravated by the too free exhibition of calomel, especially if it be pushed on to ptyalism. Yet when the nature of the stools indicate a decided disorder of the hepatic secretions in the diarrhoea in question, an occasional dose of calomel or of

the blue pill will always do good; while the daily perseverance in moderate doses of castor oil will hardly ever fail to restore them to a natural condition. Sometimes in this diarrhoea there is a superabundance of acid in the *prime vitæ*, evinced by the green sour evacuations; and whenever this occurs, a little of Henry's magnesia will most commonly answer an excellent purpose. This preparation is certainly preferable to the calcined magnesia which is usually sold in the shops; but it is to be lamented that a philosopher should not be philanthropist enough to prefer the public to his private interest. In a word, I could wish that the enlightened and excellent chemist would favour the world with the mode of preparing his magnesia. From some experiments which I have made, I suspect, that it is prepared by passing the common magnesia, mixed in water, through gauze, cotton cloth, or the like substances; at least I have obtained some this way which seemed nearly as soft, and which operated as well. But, in returning from this digression, it may be proper to observe, that when a diarrhoea does not follow the decline of the measles, a lax state of the bowels should always be instituted; and this, with warm clothing, a cooling diet, avoidance of cold, and the occasional use of the tepid bath, will generally prevent inflammatory attacks on the vital organs.

It is a remarkable fact, that when *any* cutaneous affections arise after the measles, the internal organs generally remain free from disease; and even where some internal disorder has existed, I have not unfrequently seen it disappear on the occurrence of some spontaneous eruption of the skin. Indeed, there are many cases of this nature already on record. At all times we should, therefore, be most wary in meddling with vesicles, pustules, blisters, and the like, when they come out after the measles; for although they may be temporary blemishes on the surface, they are often the occasions of saving the vital works within. We most frequently ought to allow such affections to run their natural course, and cold external applications and drastic purgatives ought at least always to be avoided; as the

first as well as the last sometimes suddenly repel them, and an increased action in some of the viscera succeeds. Yet when they prove troublesome from too long a continuance, or where they proceed from some disorder of the digestive organs, the warm bath, and the moderate administration of the Harrogate sulphureous water will remove them with the greatest safety; and I have found these two expedients also of most advantage in those chronic, glandular complaints, which sometimes follow this distemper, and which are sometimes connected with a vitiated state of the abdominal secretions. There can be no doubt that gangreous affections of the skin occasionally arise after the subsidence of the measles, especially in strumous habits, and in children who have been confined in ill ventilated apartments. Several instances of this sort might be cited from respectable authorities, but not many have fallen under my own observation, and the last which I saw occurred under the lower jaw, in a recent epidemic. When ophthalmia supervenes, it is sometimes extremely urgent, and ought in general to be treated promptly, by bleeding, purgatives, and blistering. This plan will frequently arrest the disease at once, or at all events may prevent it from assuming a chronic character; but where the lining of the palpebræ is loaded with blood, the under one in each eye may often be scarified with immediate and great benefit. If, however, a proper attention be paid to the preventive measures before recommended, the measles will seldom be followed by any of those inflammatory complaints which the vulgar emphatically call the dregs of the disease.

CHAPTER IX.

BALSAM OF COPAIVA.

ALL the outlets of the body are covered with a membrane which in a state of health secretes mucous for their lubrication ; but when this membrane is inflamed or irritated, the natural secretion is always increased, commonly viatated, and often purulent. Mr. John Hunter has asserted, that the discovery of mucus and other membranes secreting pus from mere inflammation was first made by his brother Dr. William Hunter, and by Mr. Sharp ; while Dr. F. Swediaur affirms that Morgagni and DeHaen made this discovery several years before our justly celebrated countryman. Having spoken of the efficacy of copaiva in chronic inflammations of the trachea and its branches, it will hardly be thought a digression if I state its striking utility in gonorrhœa, which is an affection of a mucous membrane, and if I also suggest its application in other diseases.

There are two species of gonorrhœas—the specific and the non-specific. The specific proceeds from a peculiar virus, and propagates itself to second persons indefinitely; the non-specific originates from strictures, irritable urethras, the contact of leucorrhœal or menstrual discharges, or from intestinal and other disorders, and it cannot be communicated to second persons. It is not my design to describe their characters, but the above distinction merits our attention both in a medical and moral sense :

for the judgment of the practitioner, and the reputation of the patient, might equally suffer from confounding the specific with the non-specific. The following observations principally relate to the specific or virulent gonorrhœa, though the remedy which it is my intention to advise, will be found more or less efficacious in variety of this complaint occurring in males. The late Mr. John Hunter thought, that what is called the virulent gonorrhœa was scarcely ever retarded by artificial means; and an intelligent writer, Mr. Samuel Cooper, has more recently observed, that as we have no appropriate remedy for this disease, it is fortunate time alone will effect the cure. An experienced practitioner, who had seen numerous cases of the specific or virulent gonorrhœa, once told me, that he had never known its duration shortened by medicine: and that from first to last, he usually found it to continue about six weeks.— Indeed many medical men suppose this affection to preserve a determined character and course, in defiance of every measure; and there are perhaps few who attempt, in the first stage, any thing more than to alleviate the inflammatory symptoms by evacuations, rest, and an antiphlogistic regimen. An old author, Dr. Samuel Turner, says that copaiva is a “noble medicament in *finishing* the cure of claps and of gleets;” and from his to the present time it has been so generally restricted to the advanced stages, that so far as I know, there is only one writer who advises it, and that by a short paragraph, in the first or inflammatory stage. But in recommending it as generally a speedy and an effectual curative in the primary as well as in the last stage of gonorrhœa, I must advert to the source whence my information was first derived on this subject. Some time ago, Dr. Pearson Dawson mentioned to me, that he had prescribed copavia, with signal success, for more than twelve years, in the very commencement of the virulent gonorrhœa. As the opinion of this enlightened physician had been drawn from close observation and extensive experience, it at once determined me to try the medicine; and I can now confirm its efficacy in gonorrhœa, not only from cases which

have fallen under my own observation, but also from the practice of an intelligent surgeon, to whom Dr. Pearson Dawson made a similar communication. My investigations might lead me to infer, that copaiva, properly and purely administered, would not fail once in twenty times completely to arrest the progress of this disease; an inference, however, which must be limited to the male, as it is not so efficacious in the female gonorrhœa, though even in the latter it is superior to every other drug, in conjunction with cleanliness and injections. The copaiva will sometimes cure an incipient gonorrhœa in two, three, or four days, provided the symptoms be not violent; and in the worst cases it will generally succeed within the first two weeks. But that practitioners may not be disappointed in their future trials of this medicine, they must be mindful to procure it genuine, to administer it in a proper form and doses, and to continue it regularly for a sufficient length of time. As its failure will most frequently arise from inattention to the one or to other of these circumstances, some special allusions to them may not be superfluous.

It has been acknowledged by druggists to a friend, that it is not unusual to adulterate copaiva with common oil, with Venice turpentine, or with Canadian balsam; and this fact affords an additional reason for care in its selection, since, unless it be pure, it will only disappoint the practitioner and disgust the patient, as well in gonorrhœa as in other complaints.—When it disorders the stomach much, its exhibition is sometimes followed by an eruption resembling the nettle-rash; and in a few peculiar habits I have seen this eruption arise where little or no affection of the stomach apparently existed.

In all the varieties of gonorrhœa, copaiva increases the quantity of urine, but almost always with a soothing effect. As its powers may be much impaired by improper combinations, it should usually be blended in soft distilled water, with mucilage of gum arabic, or with the yolk of a newly laid egg. The following formula in general answers very well in gonorrhœa. Take about a hundred, or a hundred and twenty

drops of copaiva, rather less than two ounces of mucilage, two ounces of soft distilled water, and two drachms of refined sugar. The copaiva and the mucilage must first be most intimately rubbed together in a marble mortar: the sugar must afterwards be dissolved separately in the water; and then these two mixtures must be well incorporated, by small portions at a time, until an entirely smooth and uniform emulsion be made. One half of this emulsion is to be taken immediately before breakfast, and the other half immediately before supper. This mode of administering copaiva not only assists its efficacy on the principle of minute divisibility, but it also greatly obviates its unpleasant effects upon the stomach by becoming assimilated with the food. It is, however, most frequently advisable to eat a small aromatic spice-nut before and after each dose, and one or two during the day, more effectually to guard against disturbance of the stomach; and in some instances it will be requisite to compound the mixture with an aromatic water, and to add a very few drops of alcohol, both of which render it less liable to excite nausea or eructations. Sometimes, however, the copaiva agrees best with the stomach when given in drops upon cold water; and wherever it sickens much with the mucilage, this method should therefore be tried. On some occasions, the doses of copaiva will have to be increased to the amount of three, four, or five drachms in twenty four hours: but the smallest dose should be first tried, and where that fails, it may be gradually augmented until it answers its specific purpose; and wherever it is necessary to give this drug in larger quantities, the dose should rather be given at three or four intervals, than twice in the day. But it must be remembered, when the gonorrhœa be virulent or the contrary, slight or severe, whether the cure be accomplished in three days or in a fortnight, that the copaiva must be regularly administered for about a week or ten days afterwards, otherwise a relapse for the most part may be confidently anticipated.

When ardor urinæ exists to any extent in gonorrhœa, it is

generally better to allow the copaiva to act with tolerable freedom on the bowels ; but when it proves troublesome or inconvenient as a purgative, a few drops of laudanum may be advantageously combined with each dose. The addition of laudanum, indeed, is sometimes very beneficial, in mitigating both the local and the general irritation. Cases may occur, where the inflammatory symptoms run very high in the onset, which require general and local bloodletting with other evacuations, before the administration of the copaiva ; but I am fully persuaded that such cases will be found rare, and that in general it will only be necessary to assist it by an occasional dose of opium. At the same time, an abstemious diet, rest, and strict cleanliness, will always tend to favour the efficacy of this medicine ; whereas a directly opposite effect will result from stimulants, exercise, and other irregularities of regimen.

From the remarkable efficacy of copaiva in an acute inflammation of *one* membrane, we might ask, has it a similar power over a similar affection of *every* mucous membrane ? This question naturally arises out of that disposition to generalize, which is inherent in every mind, and which has led to the discovery of important truths, as well in medicine as in other sciences : but to infer at once from a particular fact, that copaiva must necessarily be efficacious in inflammation of *every* mucous membrane, would be one of those rash and blind conjectures, which have too frequently disgraced and retarded physic. Yet at the same time, the certainty of this very fact is calculated to make us turn our inquiries to the ascertainment of the general agency of copaiva in inflammations of mucous membranes ; and as other facts have been previously adduced to show that it has an actual influence over certain inflammations of the mucous membrane of the trachea and its branches, the reasonableness of such inquiries becomes forcibly apparent.

In that violent disease the croup, the mucous membrane of the trachea is invariably more or less inflamed ; and notwithstanding

standing the prompt employment of blood-letting, emetics, purgatives, mercurials, and blisters, it sometimes proves mortal; and therefore in certain modifications of this disease, might not the copaiva be an useful auxiliary to those remedies on which most reliance is generally placed? In spasmodic asthma and hooping cough, the mucous membrane of the trachea or of the bronchia is generally implicated in the morbid phenomena; and as I have seen great relief obtained in some cases from the copaiva, it is a desideratum to ascertain its operation more perfectly in these complaints. In dysentery, the mucus membrane of the bowels is affected, and on this account might not copaiva be beneficial, but more especially in those protracted dysenteries which usually baffle the ordinary means? Yet in the acute and sub-acute dysenteries, the hepatic and cutaneous functions are always disturbed, and the early use of the lancet, with the prompt and powerful exhibition of calomel, must always constitute our main expedients; and whatever other means we employ, they are only to be accounted secondary at best, but among these secondary means perhaps copaiva may hereafter be placed. As the chronic dysentery, however, is generally attended with ulcerations of the lining of some part of the intestines, might not the copaiva prove a suitable laxative, and also a salutary stimulus to the ulcers themselves? In three obscure cases, where matter was passed from the intestines, it appeared to me of considerable service, though in a fourth it gave no alleviation whatever. As some of the older writers have recommended it in dysenteries and similar affections of the belly, we have been perhaps too hasty in discarding its use in modern times. What has been called the schiutto contracted rectum, if my observation be correct, is always connected, in its commencement, with a torpid state of the bowels; and it has appeared to me to occur more frequently in women than in men, the habits of the former predisposing them to constipation. In its onset it is frequently necessary to attend to the state of the liver, since maintaining a natural secretion of bile, and a regular ac-

tion on the bowels, will sometimes afford the chance of success, provided this plan be early commenced in combination with small general, or free topical blood-letting, and an antiphlogistic regimen. Even when the torpidity of the bowels is not dependent on a deficiency or a deprivation of bile, still the same course will generally be among the best that can be pursued. Now as in this disease of the rectum, patients declare themselves to be easiest when their motion can be made liquid, and as copaiva produces that effect, is it not likely to be of some utility? Besides, as it has a specific operation on the mucous membrane of the bowels, shown by the nature of the motions, might it in any degree contribute to induce a favourable change of action on the morbid part itself? Small tumors sometimes form on the villous coat of the intestines, near the extremity of the rectum, which occasion a great deal of suffering, and which if neglected often occasion an irremediable disease of the gut; but they ought always to be speedily removed, not by the ligature but by the knife, and then patients will frequently regain their health, if long rest, laxatives, and a spare diet, be enjoined after the operation. In two or three cases I have known some practitioners pronounce the existence of a stricture in the rectum from not having been able to force the sphincter freely with the finger; and yet on the exhibition of a few doses of castor oil, the finger has passed readily, and not the slightest vestige of obstruction remained. The fact is, that retention of scybala in the colon will often produce this sort of temporary spasmotic state of the sphincter; and as it may easily be a cause of deception, practitioners should always make a point of having the bowels properly evacuated before they venture upon a decided opinion in certain diseases of the rectum. But these remarks are leading me too far from the original subject of discussion.

In regard to chronic diseases, copaiva has had different virtues attributed to it by different individuals, but nearly all concur in its being generally beneficial in gleets, and in luecorrhœas; indeed in the former of these it seldom fails, under the

directions already noticed in the gonorrhœa, as to formula, perseverance, and temperance. By some it has been said to give tone to the nervous system, to cleanse and heal exulcerations of the urinary passages, and even to be serviceable as an external vulnerary ; whilst others have affirmed it to be efficacious in diseases of the lungs, in hemorrhoids, in hectic fever, and in many complaints beside. So general an influence having been ascribed to it, has probably been the cause of the neglect into which it has fallen amongst modern practitioners : but as its power over gonorrhœa is so decided, and as it is considerable in some affections of the windpipe, we have at least grounds for supposing that it may be successfully employed in other diseases ; and what some of those diseases probably are I have endeavoured to point out, that the consideration of their cure still might be prosecuted. The more we inquire into the modes in which medicines act, the more we shall be satisfied, that many of them operate through the medium of the circulation ; and as they may thus be conveyed to every quarter of the body, and as copaiva has the power of changing morbid states of some mucous membranes, it may possibly exert a similar effect on others. Still further to show that its operation is neither limited to the mucous membrane of the urethra, nor to that of the windpipe, I have known it very beneficial in some cases of leucorrhœa, a disease immediately seated in the mucous membrane of the vagina. It is, however, in simple leucorrhœa only that we must look for it to be at all efficient, and even in that it should not supersede the use of injections ; but when leucorrhœa is complicated with affections of the uterus and its appendages, it cannot be expected to succeed. As chronic defluxions of the mucous membrane of the trachea or of the bronchia are likewise sometimes combined with organic diseases, so it will sometimes completely fail in them ; though, upon the whole, it will generally give more relief than most other medicines in those catarrhal defluxions, which are frequently so troublesome, if not so dangerous to old people. What I have actually observed of the effects of

this medicine in some diseases must be carefully separated from what I have suggested with respect to its probable utility in other diseases ; and since it is most frequently mild in its operation, the few facts and hints here adduced may not only lead others to investigate the properties of copaiva with more accuracy, but likewise to explore those of the whole class of balsamic and resinous medicines, but especially of turpentine, which may be found of considerable efficacy.

THE END.





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